

THE EARLY LITERATURE ON MALLOPHAGA

BY
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PART I. 1758-62

Pp. 221-272; Pls. 1-2; 63 Text-figures



BULLETIN OF
THE BRITISH MUSEUM (NATURAL HISTORY)
ENTOMOLOGY
LONDON : 1950

Vol. 1 No. 3

THE BULLETIN OF THE BRITISH MUSEUM
(NATURAL HISTORY), *instituted in 1949, is to be
issued in five series, corresponding to the Departments
of the Museum.*

*Parts will appear at irregular intervals as they be-
come ready. Volumes will contain about three or four
hundred pages, and will not necessarily be completed
within one calendar year.*

*This paper is Vol. I, No. 3, of the Entomological
series.*

PRINTED BY ORDER OF THE TRUSTEES OF
THE BRITISH MUSEUM

Issued June 1950

Price Ten shillings

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(With Plates 1-2)

SYNOPSIS

In this and subsequent papers it is intended to review the species of Mallophaga described between 1758 and 1818. As there is frequently confusion over the interpretation of these old names, neotypes will be erected and figured, thus fixing the identity of the species and their type hosts. The first part deals with the twenty-six species described by Linné (1758 and 1761) and the descriptive phrases of E. L. Geoffroy (1762) which previously have been accepted as valid binomial names.

PART I, 1758-1762

INTRODUCTION

PERHAPS no group of insects has suffered so much at the hands of authors who were ignorant of, or careless about, the Rules of Nomenclature as have the Mallophaga.

Nitzsch is rightly considered the pioneer of our systematic knowledge of the group, because he was the first after Redi to make a special study of the insects parasitic on mammals and birds. Unfortunately Nitzsch paid no heed to the Rules of Nomenclature,¹ and in his paper published in 1818 (the only one published by himself in which he gives specific names) he considered it necessary to rename, with only one or two exceptions, all the species mentioned by him which had already been named by previous authors, quite regardless of whether the names formerly given them were valid or not.

Until fairly recently nearly all authors had accepted this state of affairs, though a few pre-Nitzschian names were restored at different times. But in Harrison's catalogue of the Mallophaga (1916) a real attempt to apply the principle of priority in the nomenclature of the Mallophaga was made, and the nomenclature and synonymy given by him have been very generally accepted since. Unfortunately Harrison accepted too readily the conclusions of earlier authors (especially Piaget) in questions of synonymy, regarded as valid a large number of names that have no validity under the international rules, and discarded other names for reasons that are inadequate under the same rules.

Opponents of the strict application of the principle of priority often argue that it is not scientific to use names attached to grossly inadequate descriptions, especially when the types are no longer in existence, in place of names given in connexion with good descriptions and of which the types are still preserved. This is a perfectly reasonable attitude, and it is one that supporters of the Rules of Nomenclature should do all they can to satisfy. A single example will at once show how valid the criticism is: three recent authors have utilized the name *Pediculus corvi* Linn. for

¹ Rules of Nomenclature were formulated in Linnean times, but post-Linnean authors, especially in the early part of the nineteenth century, were usually too busy naming organisms to respect the work of their predecessors.

three different species of *Philopterus*, though all of them recognize that the three species of *Philopterus* concerned are distinct. Such confusion, due to individual interpretations of what is meant by a Linnean or other early name, can only (so we think) be avoided by the establishment of neotypes for species of which the original types are lost, as is the case with nearly all the species described prior to Nitzsch. We therefore think the time is ripe for a re-examination of all names applied to Mallophaga up to and including 1818, the re-examination being based on the original descriptions and only to a very secondary degree on the opinions of later authors, followed by the definite fixation of these names by the establishment of neotypes.

A few notes are necessary as to the hosts of our neotypes. Most of the earlier authors give no indication of the source of their material, but a species described in *Fauna Suecica* must be assumed to have come from Sweden, a species described in *Fauna Boica* from Bavaria, in *Fauna Groenlandica* from Greenland, and in *Entomologia Carniolica* from Carniola, a district formerly in Austria and now in Yugoslavia. But it is necessary to remember that in the case of Mallophaga the locality is of very minor importance and the all-important point is the species (and sometimes the subspecies) of the host. Furthermore, birds are not stationary objects and a White Stork, for instance, which is in Sweden to-day may be in tropical Africa a few weeks hence. Naturally the parasites of a White Stork shot in Europe will not differ in any way from the parasites of the same bird shot on migration in Africa. Even the so-called non-migratory species have their own local movements which pay no heed to the political divisions of the world. Where there is some indication of the locality from which a species of Mallophaga was described we have felt ourselves bound to select neotypes from a subspecies of the host which occurs in the country concerned, though not necessarily from a bird actually obtained in that country nor from the resident subspecies of the host.¹ In the case of migratory birds and domestic birds and mammals we have felt ourselves to have a perfectly free hand in the matter of locality. A further difficulty, applying mainly in the case of Linnean names, is that in many instances Linné had not seen the insect concerned and his name derives its validity solely from a reference to one of Redi's figures. The host-names in the original version of Redi's work were in Italian, but Linné referred to a Latin version in which the host-names were sometimes mistranslated. In such cases we consider the host to be the species indicated in the original Italian version of Redi, not that suggested by the mistranslation into Latin and accepted by Linné. In other instances a species as originally described has more than one host, and we have adopted two principles in dealing with such instances: In the writings of Linné and some of the other early authors it commonly happens that after naming a species they give a secondary appellation such as '*P. Falconis Tinnunculi*', '*P. Sternae Hirundinis*', followed by '*Habitat in Falconibus Tinnunculis, Milvis*', '*Habitat in Sternis, Laris*'. We regard the secondary appellation as a definite indication of the type-host and have considered ourselves bound by it. Furthermore, it very commonly happens that the name given by Linné covers a species which he had himself seen and described

¹ Although even so early a writer as Redi, whose work was published in 1668, examined captive mammals in the Grand Duke's menageries and foreign birds in the Boboli Gardens.

and a different species which is represented by a reference to a plate published by some other author. In such cases it seems to us to be obvious that in restricting the name we must apply it to the material actually seen by its author.¹ We have quoted host-names both in the original form and under the modern equivalent, the modern form (only) with the author's name added.

Our purpose being only to fix the old names beyond possibility of doubt, we have made little attempt to decide which of them are synonyms, and have treated all names of forms from different hosts as referring to distinct species. The forms of *Philopterus* from many small Passerines, for example, seem to us to be at most sub-specifically distinct, but will be treated here as full species.

In interpreting the old descriptions it must be borne in mind that the naturalists of the eighteenth and early nineteenth centuries must have worked with very imperfect forms of microscope, producing only low magnifications. We think that what some of them saw can probably be appreciated better by the use of a hand-lens than by employing a modern compound microscope.

Measurements of typical males and females have been given as an indication of the general size and proportions of the species. The length of the head was measured along the midline, total length from the middle of the anterior margin of the head to the most distal point of the abdomen; measurements of breadth were made at the widest point. An asterisk placed against the measurement of the length of the male genitalia means that this measurement was made from another specimen.

Publications in which the so-called names proposed are invalid (because, for instance, they are not names but descriptive phrases) are only discussed below in so far as they bear on the identity of species described under valid names, and we have not felt justified in wasting much time or space over names that were preoccupied when published and can never become valid, except when valid names have been given to the species at a later date. Similarly we have not felt it necessary to note the infinite repetitions that are to be found in so much of the early literature, except where the author has added something to our knowledge of the species.

We feel that our action (in a later instalment) in designating neotypes for such of Nitzsch's 1818 names as are not *nomina nuda*, when specimens purporting to be type-material of some of them are in existence, calls for an explanation. Our action is essential for the very reason that the Halle collection contains material purporting to be the types, for it cannot be too strongly emphasized that, since none of Nitzsch's 1818 names has any validity except that derived from the references he gives to previous descriptions, the types are not the specimens in his collection but the lost types of the earlier authors. In many cases Nitzsch's names are absolute synonyms, and in such cases our designation of a neotype for the old name is of necessity a designation of a neotype for Nitzsch's name also (e.g. the neotype of *Pediculus dolichocephalus* Scopoli is automatically the neotype of *Liotheum* (*Physostomum*) *sulphureum* Nitzsch). But in the cases of the few valid names a most serious difficulty

¹ As far as Linné is concerned this usually presents no difficulty: he marks with a † species which he had not seen, and in cases where he had seen material from one of the hosts he mentions, but not from the others, it is usually possible to ascertain from which host his material came by reference to *Fauna Suecica*.

might arise, of which examples may be useful: *Philopterus* (*Docophorus*) *icterodes* Nitzsch 1818 is a perfectly valid *nomen novum* for the species shown in De Geer's pl. 4, fig. 14 (1778), and the host must of necessity be *Mergus serrator*, but (judging from the list of hosts given by Giebel in 1874) Nitzsch had no material from this host. Similarly, *Liotheum* (*Trinoton*) *conspurcatum* Nitzsch 1818 is a new name for *Pediculus anseris* Sulzer 1776 *nec* Linné 1758, but Nitzsch gives as hosts both *Anser cinereus* and *Cygnus olor*; the species on these two hosts are almost certainly not the same, and if the *Cygnus* were to be selected as type-host of *conspurcatum* the name would be applied to the wrong species. Such selection would be quite invalid, but more confusion would result before it was corrected. We have to remember that the Halle collection has been (and may again be) in the hands of authors who do not entirely accept the Rules of Nomenclature and who might well make invalid type-selections. To avoid any possibility of such action we have designated neotypes for all the potentially valid names contained in Nitzsch's work of 1818, which will be the last work considered in the present series of papers.¹

It is our pleasant duty to thank Dr. Karl Jordan, F.R.S., President of the International Commission on Zoological Nomenclature, for much invaluable assistance in the interpretation of the Rules. We are also indebted to the Trustees of the British Museum for permission to publish Figs. 1, 7, 12, 13, 15, 19, 35, 43, 49, drawn by Mr. A. J. E. Terzi, and to Colonel Richard Meinertzhagen for permission to publish Figs. 34-36, 38-40, 45, 48, 50, 52, 54-59 by Mr. R. S. Pitcher, and Figs. 60-62 by Mr. A. Smith. We are also indebted to Captain W. H. Pollen for the photographs on Plate 1, fig. 2, and Plate 2, figs. 1-2; the other photographs were taken by the late Mr. J. G. Bradbury.

LINNÉ, 1758 (*Systema Naturae*, Ed. x, 1: 611-614)

Pediculus porcelli (p. 611)

By Article 21 of the International Rules of Nomenclature 'the author of a scientific name is that person who first published the name *in connection with an indication, a definition, or a description*' (italics ours). In the present instance none of these is to be found and *Pediculus porcelli* Linn. 1758 is a *nomen nudum* and has no standing in nomenclature. The first author to describe a species under this name was Schrank in 1781, and it will be discussed under his work.

Pediculus cameli (p. 611)

Although this name belongs to a sucking-louse, and has never been used otherwise, we must mention it because of the erroneous reference '*Red. exp. t. 22*' given by Linné. The species shown on Redi's plate 22 (1668) are both dealt with elsewhere by Linné and the reference should be to Redi's plate 20.²

¹ This was written before we knew of the destruction of the greater part of the Halle collection. We have let it stand because of the importance of the principle involved, but have now made many more neotypes than we previously intended.

² The numbering of the plates is the same in the Italian edition of Redi and in the Latin translation that Linné used.

Pediculus cervi (p. 611)

There is no description, but there are references to '*Frisch. ins. 12. p. 15. t. 5*' and '*Red. exp. t. 5*.' Frisch's plate represents a Hippoboscid. The reference to Redi is an obvious *lapsus calami*, for his plate 5 is a bird-parasite which is named by Linné on a later page. Redi's plate 23, however, represents two *Pidocchi del Cervo*, of which one is a sucking-louse and the other a Trichodectid, and there can be no doubt that it was to this plate that Linné intended to refer. *P. cervi*, as originally published by Linné, is a composite of a Hippoboscid, a Mallophagan, and an Anopluran.

Harrison (1916: 12 & 69) endeavoured to apply the name to the Trichodectid, quoting it as an earlier name for *Trichodectes longicornis* Nitzsch. But Linné (1761: 476) gives only the reference to Frisch, thus restricting the name to the Hippoboscid now known as *Lipoptena cervi* (Linn.). Much later, von Olfers (1816: 86) restricted the name *cervi* to the upper figure in Redi's plate 23, i.e. to the sucking-louse, so that Harrison's application of the name is twice invalidated.

Nitzsch's action (1818: 296) in applying the name *Trichodectes longicornis* to the lower figure on Redi's plate 23 is perfectly legitimate and his name must stand.

Pediculus ovis (p. 611)

The only apparent 'indication' is a reference to '*Red. exp. t. 22 f. 1?*', but this indication is qualified by a question-mark, which renders it nugatory. In passing it seems worth while pointing out that, as Redi's figure is fairly good, the presence of the query suggests strongly that what Linné had before him was something different. The author of *Pediculus ovis* is Schrank (1781, q.v.).

Pediculus bovis (p. 611)

There is an exceedingly brief description: '*P. Bovis Tauri, abdomine lineis transversis octo ferrugineis*', and a reference to No. 1155 in *Fauna Suecica* (1746). Even this brief description is sufficient to indicate beyond reasonable doubt that Linné was describing the species later known as *Trichodectes scalaris* Nitzsch, and the description in *Fauna Suecica* is a quite detailed one of the same species.

Linné later changed the name of the species to *Pediculus tauri* (1761: 476, No. 1946), but otherwise it remained without synonyms until Nitzsch (1818: 296) renamed it *Trichodectes scalaris*; the latter name has no 'indication' except a reference to *P. bovis*. Kéler (1938: 450) described and figured a female from Nitzsch's series and (in the legend of fig. 34) called it '*Bovicola scalaris* Nitzsch (*bovis* Linné), typisches Weibchen'. This is not a designation of a type, and there is no such designation in the text of Kéler's work. The male appears to be excessively rare and was almost certainly unknown to Linné, but Bedford (1920, pl. 6, fig. 3) figured the genitalia of a single male contained in his collection and the same specimen served for Werneck's figures of this sex (Werneck, 1941: 196, fig. 1).

Neotype of *Damalinea bovis* (Linn.): a female, in the British Museum (Nat. Hist.) (slide No. 422), from domestic ox, *Bos taurus* Linn., Cyprus; this specimen was determined by F. L. Werneck and agrees with his excellent figures (1936, figs. 183-185). *Neallotype* Bedford's male specimen mentioned above, collected from *Bos taurus* Linn.

in South Africa, and still in the Bedford collection. *Neoparatypes*: 6 males and 97 females from the same host from Great Britain, Eire, Cyprus, South Africa, U.S.A., and Brazil; these include two specimens, labelled *Trichodectes scalaris*, in the Denny collection.

Since *T. scalaris* Nitzsch 1818 owes its validity entirely to the reference to *bovis*, our neotypes of the latter are automatically also neotypes of *Damalinia scalaris* (Nitzsch).

Pediculus equi (p. 612)

A *nomen nudum*, which was copied into the works of almost all authors, still as a *nomen nudum*, until Denny (1842: 61, 191, pl. 17, fig. 7) finally described a *Trichodectes equi* which he attributed to Linné. The confusion into which Harrison and Johnston (1912: 20, 21) and Harrison (1916: 70, 72) fell over these names necessitates our saying more about them than would otherwise have been required. In the former paper the authors state that *equi* Denny and *equi* Linn. are not the same, that *T. pilosus* Giebel and *T. parumpilosus* Piaget are Denny's species, and that *T. pilosus* Piaget *nec* Giebel is the species 'described' by Linné. The actual facts are that as Linné never described his species it is impossible to say what it may have been, that *T. pilosus* Piaget *nec* Giebel is a goat-parasite, and that *pilosus* Giebel and *parumpilosus* Piaget are synonyms of *Damalinia equi* (Denny).

Pediculus asini (p. 612)

Like *cameli*, this name belongs to the Anoplura and has never been applied to a Mallophagan. It is only mentioned because Linné gives the erroneous reference '*Red. exp. t. 22. f. 1*'. Redi's '*Pidocchio dell Asino*' is depicted on his plate 21.

Pediculus tinnunculi (p. 612)

There is no description, but there are references to *Fauna Suecica* No. 1157 (1746), '*Red. exp. t. 13*' (1668), and '*Frisch. ins. 11. p. 24. t. 24*'; the host-record is '*habitat in Falconibus Tinnunculis, Milvis*'. The description in *Fauna Suecica* is fairly detailed and could not apply to any parasite of the Falconidae but a *Laemobothrion*, as is confirmed by the plates of Redi and Frisch, both of which represent species of this genus, though Frisch's species is not the same as Redi's. The only host-record in *Fauna Suecica* is '*Habitat in Falcone Tinnunculo s. Cenchride 67*'.

The species was renamed *Nirmus hasticeps* by von Olfers, and this name was altered to *hastipes* by Burmeister (1838: 442); otherwise there appear to be no synonyms except that Kéler (1937: 322) quite wrongly applied the name *Laemobothrion giganteum* Nitzsch to the present species; *giganteum* is a different species and will be dealt with in the discussion of Nitzsch's paper of 1818.

This species is a typical *Laemobothrion* with characters as shown in Pl. I, fig. 1, and Figs. 1-5. It lacks the longitudinal line of hairs on the lateral margins of the sternal plates seen in related species, and has fewer hairs on the anterior margin of the prothorax (4-6 each side).

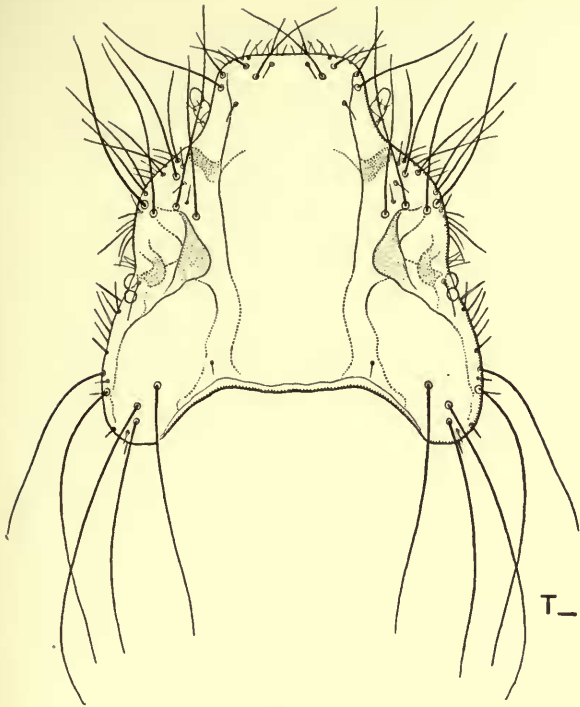


FIG. 1

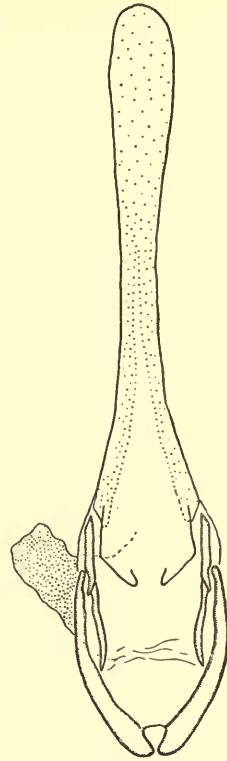


FIG. 2

FIGS. 1-2. *Laemobothrion tinnunculi* (Linn.), ♂: 1. Head, dorsal. 2. Genitalia.

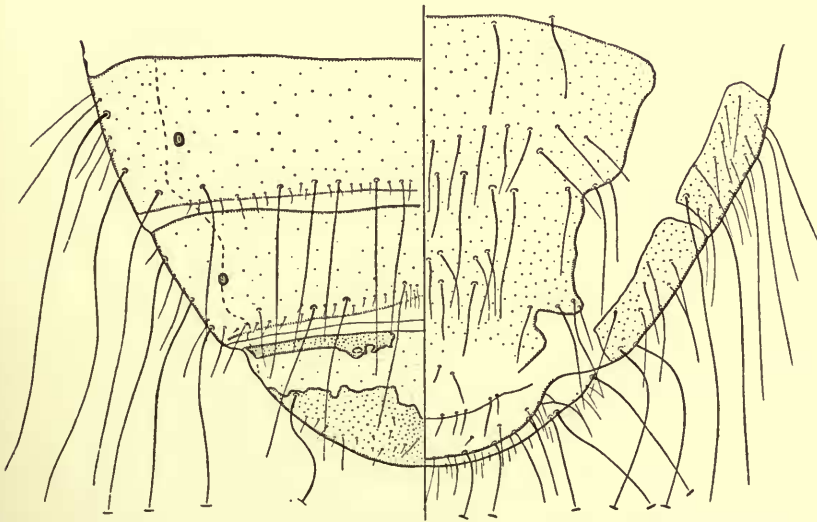


FIG. 3. *Laemobothrion tinnunculi* (Linn.), ♂, terminal segments of abdomen.

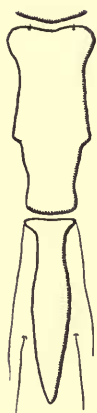


FIG. 4



FIG. 5

FIGS. 4-5. *Laemobothrion tinnunculi* (Linn.), ♀: 4. Sternal plates of thorax. × 37.
5. Terminal segments of abdomen, ventral.

Measurements

	Male		Female	
	Length	Breadth	Length	Breadth
	mm.	mm.	mm.	mm.
Head . . .	1.25	1.37	1.40	1.66
Abdomen . .	4.25	2.22	5.45	2.60
Total . . .	7.70	..	8.35	..
Genitalia . .	2.02*	..	..	..

Neotype of *Laemobothrion tinnunculi* (Linn.): A female in the British Museum (Nat. Hist.) (slide No. 405), from *Falco t. tinnunculus* Linn., from Cyprus. *Neallotype*: a male in the British Museum (Nat. Hist.) (slide No. 406) from the same host-form from Uganda. *Neoparatypes*: 9 males and 25 females from the same host-form, Great Britain, Cyprus, Palestine, Asia Minor, India, and East Africa.

Neotype of *Laemobothrion hastipes* Burmeister: a female (Meinertzhagen collection, slide No. 6079) from *Falco t. tinnunculus* Linn. from Kenya, which agrees with the neotype of *L. tinnunculi* (Linn.). *Laemobothrion hasticeps* (von Olfers) will be dealt with under the work of the latter author.

Pediculus corvi (p. 612)

The species is not described, but there are references to No. 1158 in *Fauna Suecica* (1746) and to 'Red. exp. t. 16. f. 2' (1668). The host-record is 'habitat in Corvis'.

There has never been any doubt that the description in *Fauna Suecica* refers to a *Philopterus*, and this view is confirmed by Redi's figure. But the question of the specific identity of *Philopterus corvi* (Linn.) is much more debatable and has given rise to much confusion. Harrison (1916: 92) incorrectly quotes the host as *Corvus corone* and places *atratus* 'Nitzsch in Denny' as a synonym; Thompson (1935: 214) accepts the erroneous host-record given by Harrison and places *ocellatus* (Scopoli) as a synonym, and Kéler (1937: 323, 324), noting correctly that Redi's 'Pollino del Corvo' (Redi's plate 16, left-hand or lower figure) represents the species found on the Rook, uses '*Docophorus corvi* (Redi) Linné' to replace *Philopterus atratus* Nitzsch.

It is generally recognized that the species found on *Corvus corax*, *Corvus corone* (spp. *corone* and *cornix*), and *Corvus frugilegus* are different; they have usually been referred to as *Philopterus* (or *Docophorus*) *semisignatus*, *ocellatus*, and *atratus* respectively, all the names being attributed to Nitzsch. Of these, the second was first used by Scopoli in 1763 and will be dealt with below; *atratus* (Nitzsch, 1818: 290) is a *nom. nov.* for the species depicted by Redi on his plate 16 and is the valid name for the species found on *Corvus frugilegus* unless it is a synonym of an earlier name, which we hope to show that it is not.

In our opinion none of the determinations of *Pediculus corvi* Linn. that we have quoted above can be sustained. Linné not only gives a reference to *Fauna Suecica*, where the only host is *Corvus corax*, but gives '*P. Corvi Coracis*' as his secondary appellation for the species. The type-host is, therefore, *Corvus corax*, and *Docophorus semisignatus* Denny (1842: 41, 66, pl. 1, fig. 5) must sink as a synonym.

This species (Pl. I, fig. 2; Figs. 6-9) is distinguished from related species by having the clypeal signature sclerotized only at the anterior end.

Measurements

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	mm. 0.70	mm. 0.66	mm. 0.72	mm. 0.75
Abdomen . .	1.00	0.85	1.06	0.97
Total . . .	1.95	..	2.03	..
Genitalia . .	0.38	..	..	..

Neotype male and *neallotype* female of *Philopterus corvi* (Linn.): a male and female in the Meinertzhagen collection (slide No. 16149) from *Corvus corax corax* Linn., from Sweden. *Neoparatypes*: 41 males and 45 females from the same host-form, Sweden, Russia, and Great Britain.

Lectotype of *Philopterus semisignatus* (Denny) here selected: a male in the Denny collection (slide No. 201) from *Corvus c. corax* Linn. from Britain. *Paratypes*: 1 male and 8 females with the same data.

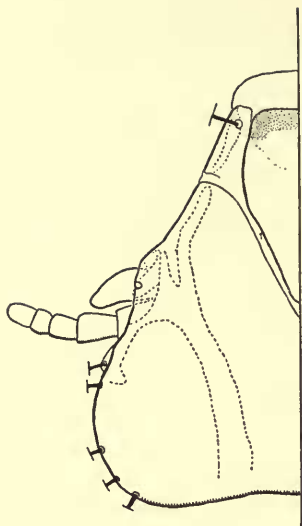


FIG. 6



FIG. 8

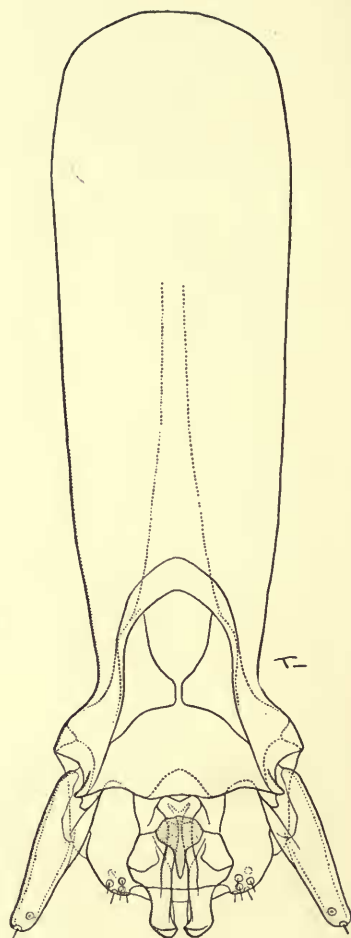


FIG. 7

FIGS. 6-8. *Philopterus corvi* (Linn.): 6. ♂ head, dorsal. 7. ♂ genitalia.
8. Terminal segments of ♀ abdomen, ventral.

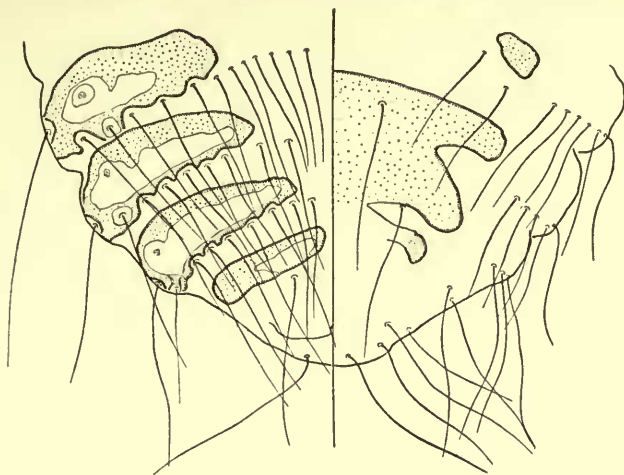


FIG. 9. *Philopterus corvi* (Linn.), terminal segments of male abdomen.

Pediculus infausti (p. 612)

As this species was described from material supposedly collected from a bird and was quoted in the literature dealing with Mallophaga for very many years it must have a brief notice. Harrison (1916: 15) writes of it: 'Based on a brief description in the *Fn. Suec.* of what is very clearly a Psocid.' We entirely agree with this opinion.

Pediculus picae (p. 612)

A *nomen novum* for the species depicted by Redi on plate 5, and marked by Linné as not seen by him. This name has given us a great deal of trouble owing to confusion over the host. In 1668 Redi calls the parasite '*Pollino della Garza*', but in the Latin editions of Redi (1671 and 1729) the louse is called *Pulex picae*. Now '*garza*' is *Egretta a. alba*, whereas '*gazza*' is the magpie, *Pica. p. pica*, and Linné gives the host of the species as *Corvus Pica*. Harrison (1916: 17) states that '*gazza*' means jay, but this is incorrect. The further statement made by Harrison (l.c.) that 'Linné's species is undoubtedly that mentioned in the *Fauna Suecica* as coming from *Pica lapponica*' is also incorrect: not only does Linné mark *picae* as not seen by him (whereas he had seen the species on *P. lapponica*), but comparison of his references shows that the species from *P. lapponica* is *Pediculus infausti*, with which we have just dealt.

We have either to assume that the host given in 1668 was a *lapsus calami* for '*gazza*' or that the host given in the Latin editions is a mistranslation; either assumption could be supported by parallel cases. We have searched many herons, including *Egretta alba*, without finding any Mallophaga remotely resembling Redi's figure, nor have any authors known to us figured any species at all like it from the Ardeidae. Séguy (1944: 134, fig. 192) has taken up a suggestion made by Denny (1842: 214) and uses the name for the common *Myrsidea* of the magpie. This species sufficiently resembles Redi's figure (which is one of his poorest) for us to feel bound to accept the identification. The species described by Denny (1842: 199, 213, pl. 18, fig. 6) as *Colpocephalum eurysternum* (nec Burmeister) is conspecific with *Myrsidea picae*

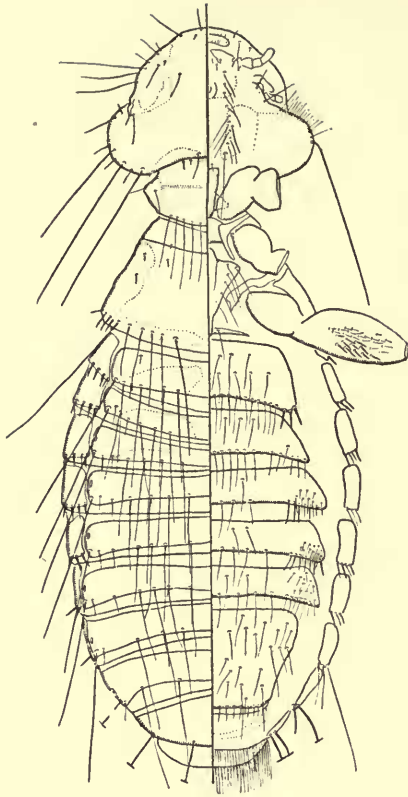


FIG. 10



FIG. 11

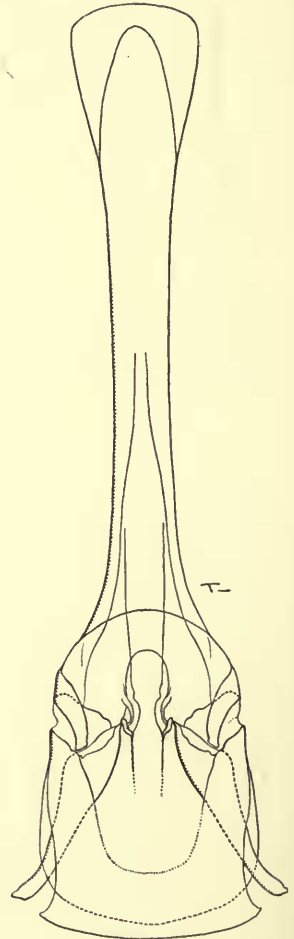


FIG. 12

FIGS. 10-12. *Myrsidea picae* (Linn.): 10. Female. 11. Terminal segments of ♂ abdomen. 12. ♂ genitalia.

(Linné), and is represented in the Denny collection by two females, but the species described by Piaget (1880: 433, pl. 34, fig. 2) as '*Menopon picae* D.' (though Denny never described any species under this name) has nothing to do with Linné's species, being a *Menacanthus*.

Myrsidea picae (Linn.) (Figs. 10-12) is distinguished from related species by the ventral chaetotaxy of the abdomen and the form of the tergal plates. The male resembles the female (Fig. 10) in general form but tends to be smaller, does not have the anterior tergal plates modified, and differs in the ventral chaetotaxy of the posterior segments of the abdomen (Fig. 11).

Measurements

	Male		Female	
	Length	Breadth	Length	Breadth
	mm.	mm.	mm.	mm.
Head . . .	0.35	0.53	0.38	0.60
Abdomen . . .	1.03	0.65	1.28	0.87
Total . . .	1.82	..	2.10	..
Genitalia . . .	0.57*	..	..	..

Neotype female and *neallotype* male of *Myrsidea picae* (Linn.) in the British Museum (Nat. Hist.) (slide No. 408) from *Pica p. pica* (Linn.) from Liguria, Italy. *Neopara-*
types: 46 males and 83 females from the same host-form, from England, Estonia, Poland, Yugoslavia, and Macedonia.

Pediculus cygni (p. 612)

Linné had not seen this species and merely gives a reference to Redi's plate 8, which is an unmistakable representation of an *Ornithobius*. Redi gives the host as '*Cygnus*' and Linné as *Anas cygnus*, but we have to take into consideration *Cygnus olor* (Gmelin), because this species was not recognized as distinct from *cygnus* in 1668 or 1758. We have examined material from both these hosts and find that the species of *Ornithobius* found on them are not the same; fortunately Redi's figure of the end of the abdomen is rather good and it definitely agrees better with the species found on *C. cygnus* (Linn.) than with that on *C. olor*. Redi's figure shows a female.

This species has comparatively little synonymy. No author added anything to our knowledge of it until Denny (1842: 60, 183, pl. 23, fig. 1) described and figured it as *Ornithobius cygni*, correctly attributing the name to Linné. Vollenhoven (1860, pl. 8, fig. 4) 'emended' the name to *cygnorum* and Rudow (1870: 139) described nymphs from *Cygnus musicus* (= *C. cygnus*) as *Metopeuron punctatum*. Denny's material, which is not in his collection in the British Museum, was from '*Cygnus ferus, olor, and bewickii*'; as the first of these names is a synonym of *C. cygnus* (Linn.), his material must have been a mixture including Linné's species. The species on *C. olor* (Gmelin) is *Ornithobius bucephalus* (Giebel).

Ornithobius cygni (Linn.) (Figs. 13-17) is distinguished from *O. bucephalus* (Giebel) by the absence of stout spines on the vulva and by the male genitalia.

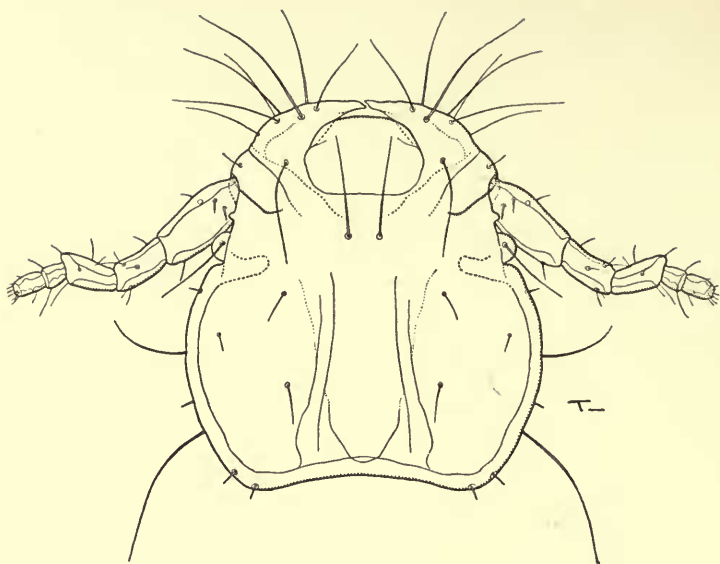


FIG. 13

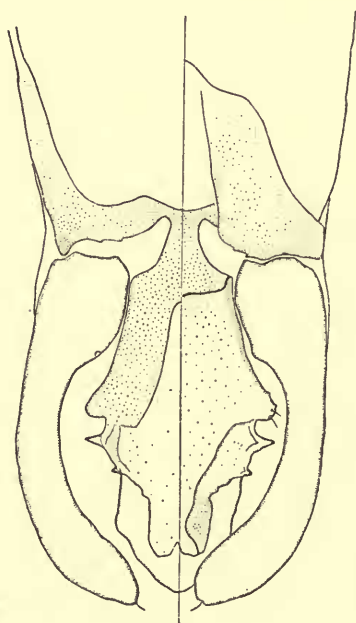


FIG. 14

FIGS. 13-14. *Ornithobius cygni* (Linn.), ♂: 13. Head. 14. Genitalia.

Measurements

	Male		Female	
	Length	Breadth	Length	Breadth
	mm.	mm.	mm.	mm.
Head . . .	0.88	0.85	0.82	0.80
Abdomen . . .	2.70	0.98	2.52	1.16
Total . . .	4.35	..	4.05	..
Genitalia . . .	0.66*	..	..	..

Neotype female and *neallotype* male of *Ornithobius cygni* (Linn.) in the Meinertzhagen collection (slide No. 119) from *Cygnus c. cygnus* (Linn.), South Uist, Outer Hebrides, Scotland. *Neoparatypes*: 4 males and 11 females from the same host-form from Scotland and Eire.

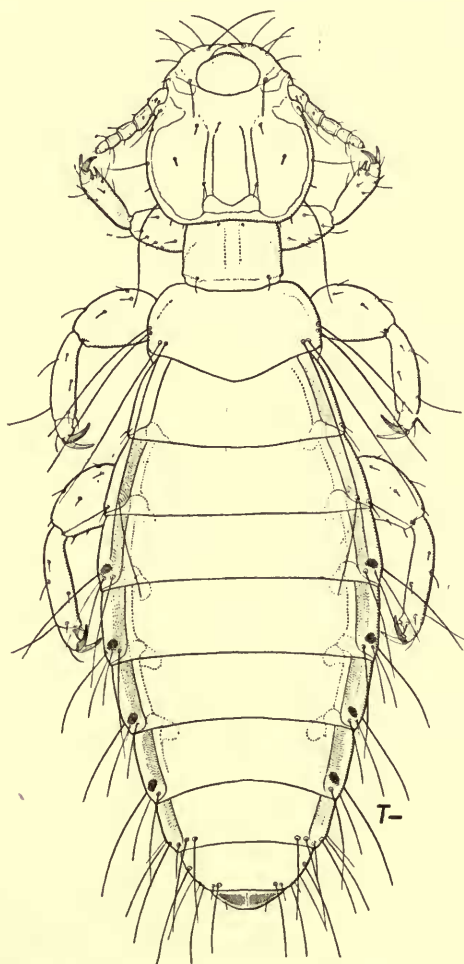


FIG. 15. *Ornithobius cygni* (Linn.), ♀.

G g

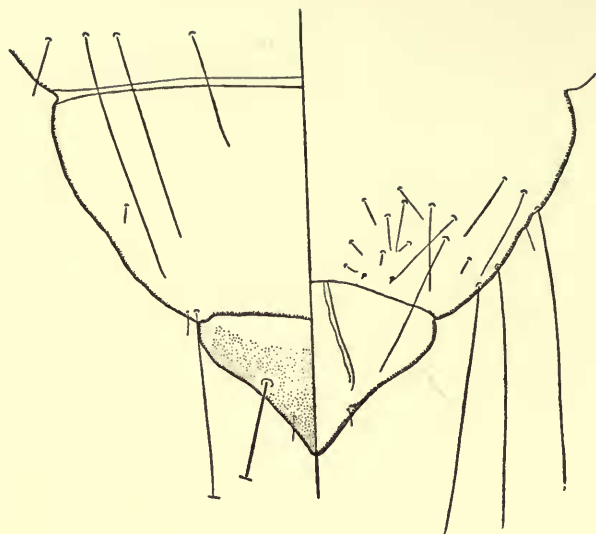


FIG. 16

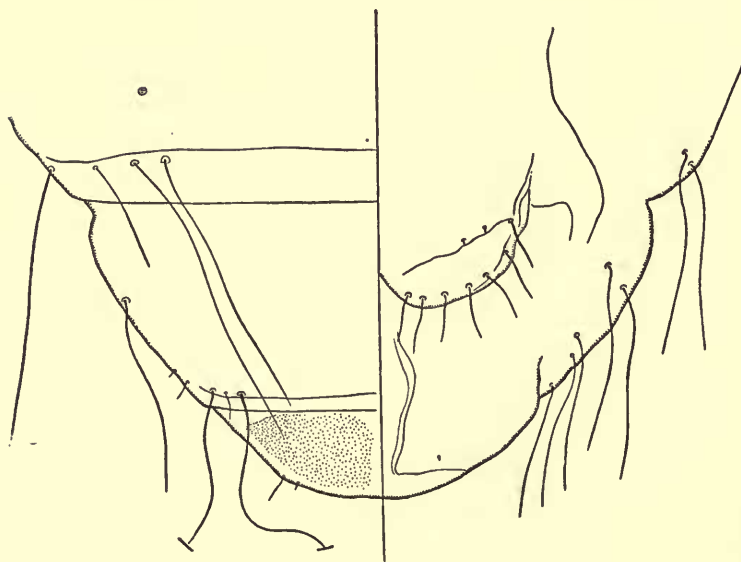


FIG. 17

FIGS. 16-17. *Ornithobius cygni* (Linn.), terminal segments of abdomen: 16. ♂. 17. ♀.

Neotype of *Ornithobius punctatus* (Rudow): a male (Meinertzhagen collection, slide No. 80) from *Cygnus c. cygnus* (Linn.) from South Uist, Outer Hebrides, Scotland, which agrees with the neotype of *O. cygni* (Linn.).

Pediculus anseris (p. 612)

There is no description, but a reference to Redi's plate 10. The host-record is '*habitat in Anseribus—feris & mansuetis*'.

Redi's plate 10 shows two '*Pollini dell' Oca Reale*' belonging to different genera; we must therefore seek a restriction of Linné's name. This is to be found in the work of J. C. Fabricius (1775: 807), where he adds to the references a brief description '*filiformis, pallidus: margine nigro punctato*'. This agrees with the species shown in the right-hand figure of Redi's plate and not with the other; this figure depicts an *Anaticola*, which must be known as *Anaticola anseris* (Linné), 1758. Fortunately this restriction agrees with the modern use of the name. The species which Sulzer (1776, pl. 29, fig. 4) depicted as *Pediculus anseris* is not congeneric and will be discussed as *Trinoton conspurcatum* Nitzsch, 1818. As regards Redi's host-name, '*Oca Reale*' appears to have no meaning, but '*Oca feralis*' would mean wild goose; there are on the plate very evident signs of an attempt to alter the word *Reale* and it seems probable that it was an error. In the Latin edition the parasite is called '*Pulex anseris sylvestris*', which tends to confirm this suggestion. We have assumed the wild goose to be *Anser anser* (Linn.).

Pediculus anseris Linné, as restricted by Fabricius, escaped synonyms (apart from the fact that von Olfers confused it with *crassicornis* Scopoli) until 1818, when Nitzsch proposed the name *Ph. (Lipeurus) jejunus* for it; he did not describe it, but cited references to Linné, Fabricius, and the right-hand figure of Redi's plate.

Measurements

	Male		Female	
	Length	Breadth	Length	Breadth
	mm.	mm.	mm.	mm.
Head . . .	0.61	0.42	0.68	0.48
Abdomen . .	1.59	0.51	2.06	0.73
Total . . .	2.76	..	3.50	..

Neotype male and *neallotype* female (Figs. 18–21; Pl. II, fig. 1) of *Anaticola anseris* (Linn.) in the Meinertzhagen collection (slide No. 228) from *Anser anser* (Linn.) from South Uist, Outer Hebrides, Scotland. *Neoparatypes*: 6 males and 12 females with the same data and from Ireland.

The neotypes are also automatically neotypes of *Anaticola jejunus* (Nitzsch).

Pediculus moschatae (p. 612)

Without description and with the symbol used by Linné for species he had not seen, but with a reference to '*Red. exper. t. 9. f. 1*'.

The central figure of Redi's plate, though unnumbered, is obviously the one to

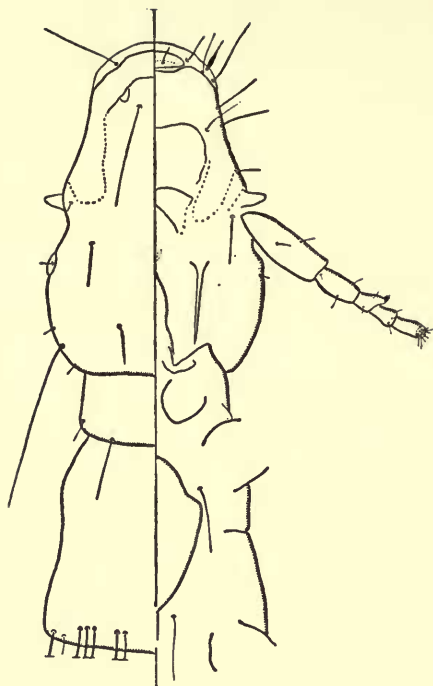


FIG. 18

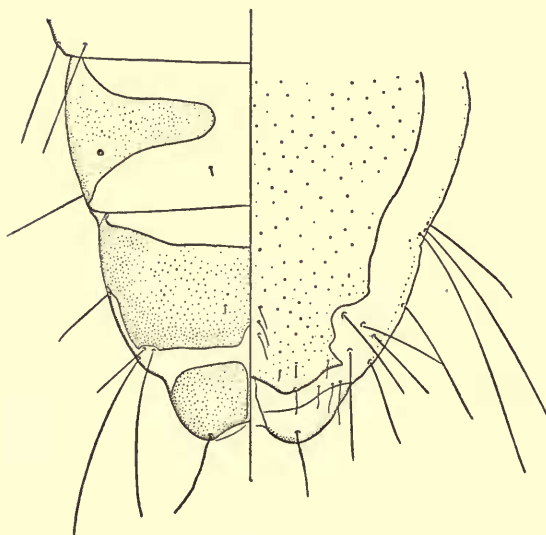


FIG. 20

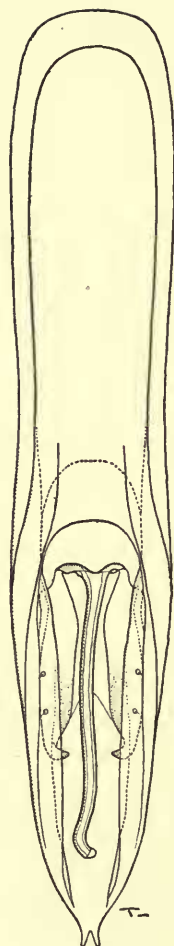


FIG. 19

FIGS. 18-20. *Anaticola anseris* (Linn.), ♂: 18. Head and thorax. 19. Genitalia. × 173.
20. Terminal segments of abdomen.

which Linné refers; it is labelled '*Pollino del German Turco*' and is an unmistakable representation of a species of *Acidoproctus*. Linné gives the host as *Anas moschata*, which is definitely erroneous because the name '*German Turco*' belongs to *Netta rufina*. No *Acidoproctus* has been recorded from *Cairina moschata*, but the species on

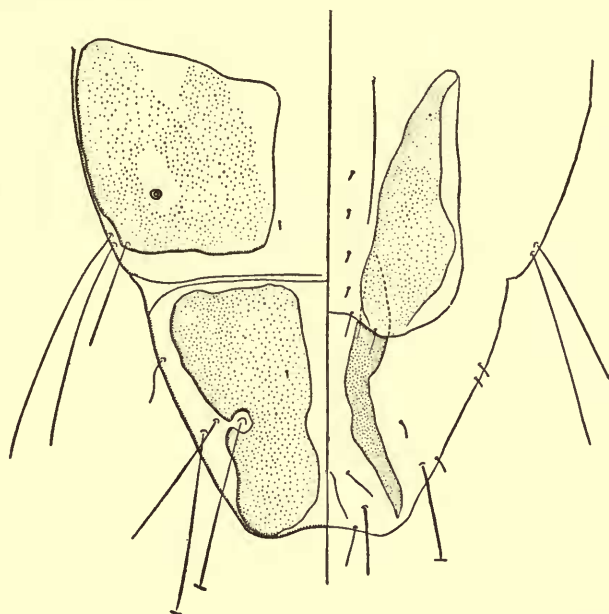


FIG. 21. *Anaticola anseris* (Linn.), terminal segments of ♀ abdomen.

Netta rufina is well known as *A. stenopyx* (Burmeister) or *A. stenopygus* '(Nitzsch)'. Comparison of Redi's figure with those published by Giebel (1874, pl. 8, figs. 6 & 7) will show the high degree of accuracy to which Redi's artist sometimes attained.

This species (Figs. 22-25; Pl. I, figs. 3-4) is distinguished from related species of *Acidoproctus* by the shape of the head and terminal segments of the abdomen and by the characters of the vulva and male genitalia.

Measurements

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	mm. 0.83	mm. 0.68	mm. 0.85	mm. 0.70
Abdomen . . .	2.38	0.88	2.58	0.95
Total . . .	3.88	..	4.05	..
Genitalia . . .	0.58*	..	..	..

Neotype female and *neallotype* male of *Acidoproctus moschatae* (Linn.) in the Meinertzhagen collection (slide No. 10994), from *Netta rufina* (Pallas) from Rajputana,

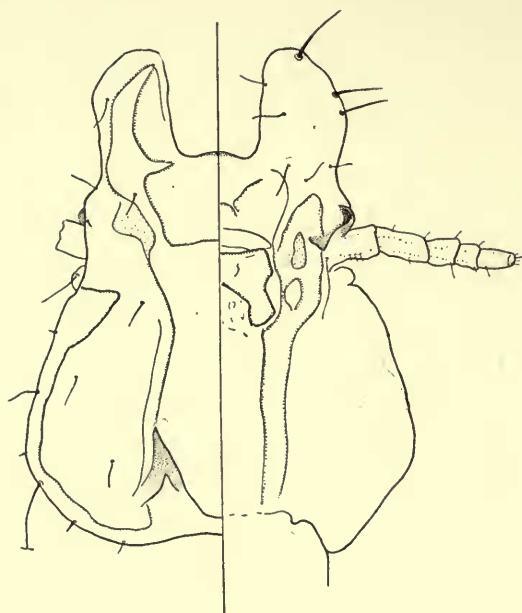


FIG. 22

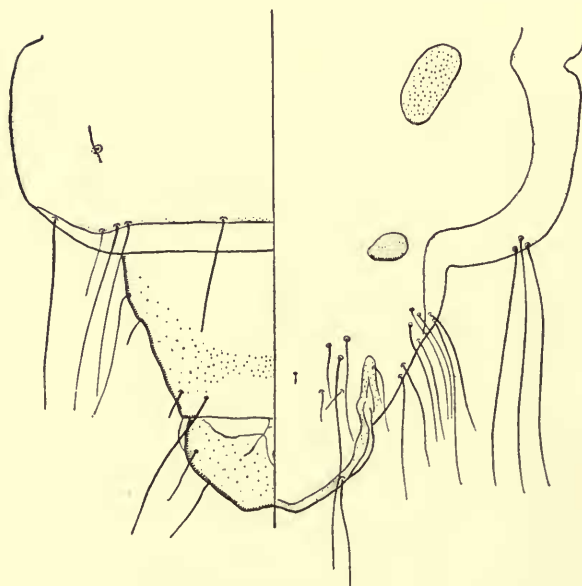


FIG. 23

FIGS. 22-23. *Acidoproctus moschatae* (Linn.), ♂: 22. Head.
23. Terminal segments of abdomen.

India. *Neoparatypes*: 27 males and 27 females from the same host-species, India, Lake of Antioch, and Russia.

Neotype of *Acidoproctus stenopyx* (Burmeister): a male (Meinertzhagen collection, slide No. 8938) from *Netta rufina* (Pallas) from Rajputana, India, which agrees with the neotype of *A. moschatae* (Linn.). Since *Lipeurus stenopygos* Giebel (1861: 318) is a *nomen novum* for *Nirmus stenopyx* Burmeister, the neotype of *Acidoproctus stenopyx* (Burm.) is also automatically the neotype of *A. stenopygos* (Giebel).

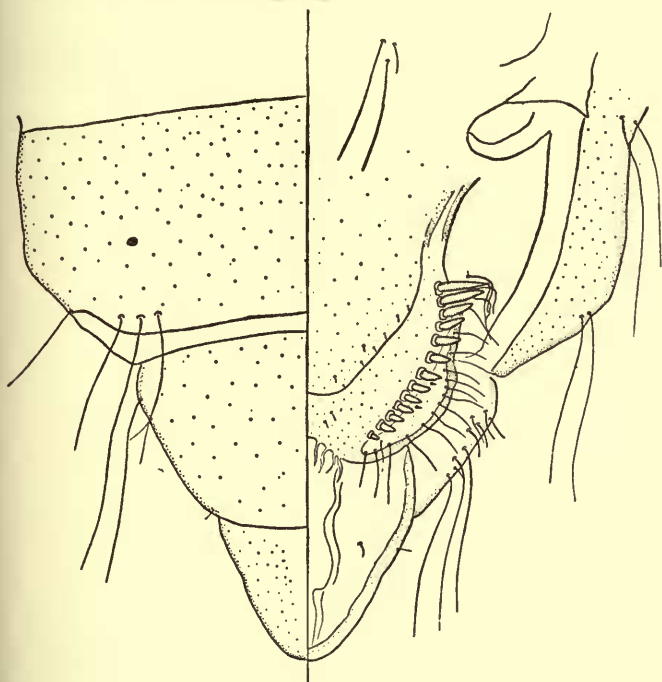


FIG. 24

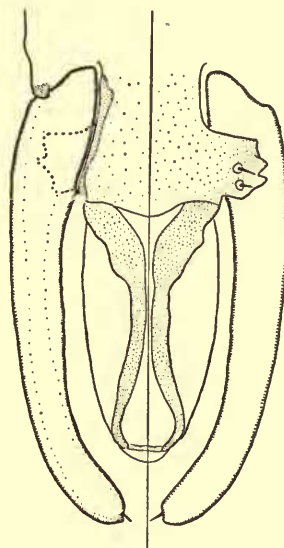


FIG. 25

FIGS. 24-25. *Acidoproctus moschatae* (Linn.):
24. Terminal segments of ♀ abdomen. 25. Male genitalia.

Pediculus querquedulae (p. 612)

No description, and marked by Linné as not seen by him, but with a reference to 'Red. exper. t. 12'. Redi's plate represents a *Trinoton* from 'Arzavola o Farquetola' = *Anas crecca* Linn.

This species (Figs. 26-28; Pl. II, fig. 2) is similar to that figured by Ferris (1928: 226) as *Trinoton anserinum* (Fabricius), but differs in having fewer hairs in the brushes on the third femora and fourth sternites (Fig. 28) and on the genital region of the male (Fig. 26); the genital region of the female also shows minor differences (Fig. 27). The male genitalia are as represented by Ferris (1928, fig. 9 e) for a specimen from *Cygnus bewickii* Yarrell.

Measurements

	Male		Female	
	Length	Breadth	Length	Breadth
	mm.	mm.	mm.	mm.
Head . . .	0.86	1.27	0.90	1.33
Abdomen . . .	2.95	1.44	3.26	1.69
Total . . .	5.45	..	6.10	..
Genitalia . . .	2.27*	..	..	..

Neotype female and *neallotype* male of *Trinoton querquedulae* (Linn.): in Meinertzhagen collection (slide No. 4007) from *Anas c. crecca* Linn., from England. *Neopara-*

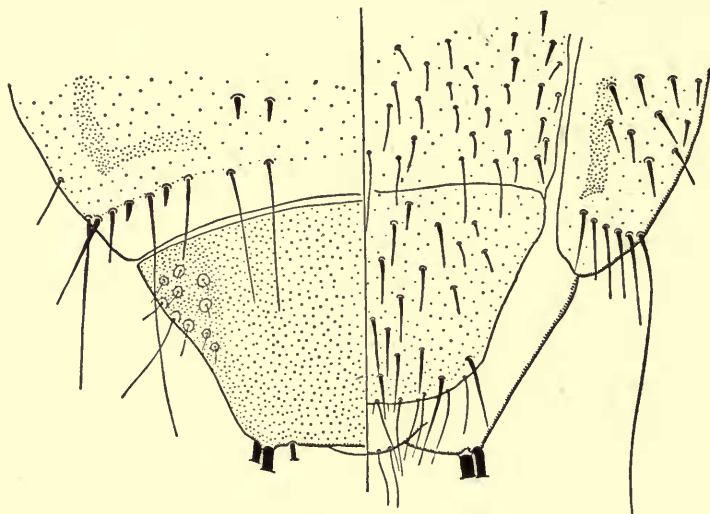


FIG. 26

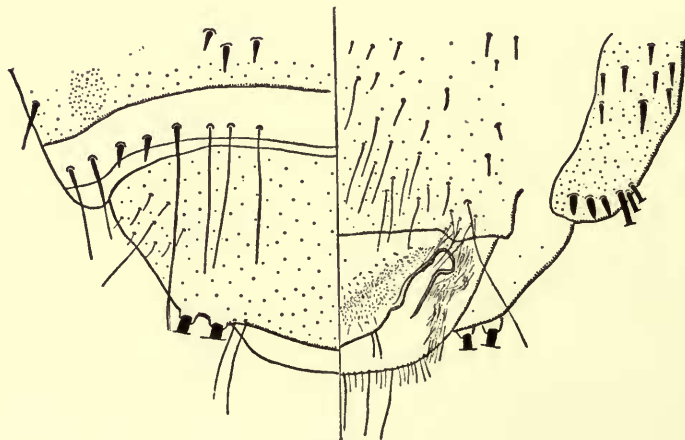


FIG. 27

FIGS. 26-27. *Trinoton querquedulae* (Linn.), terminal segments of abdomen: 26. ♂. 27. ♀.

types: 15 males and 12 females from the same host-form, England, Iceland, Kenya, Morocco, Nepal, and India (Rajputana).

Pediculus sternae (p. 612)

One of us (Clay, 1949:4) has already dealt with *Saemundssonina sternae* (Linn.) and has erected neotypes for it. The neotypes are from *Sterna h. hirundo* Linn.

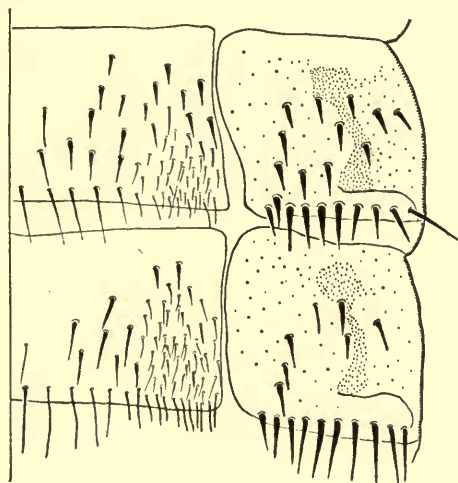


FIG. 28. *Trinoton querquedulae* (Linn.), fourth and fifth sternites, ♀.

Pediculus plataleae (p. 613)

There is no description, but a reference to Redi's plate 4. The host-record is 'in *Leucorodiis*' and the secondary appellation *P. Plataleae Leucorodiae*. Linné had not seen the species.

The reference is erroneous, the only Spoonbill parasite figured by Redi being his 'Pollino del Palettone', on plate 7 (*Pulex albardeolae* in the Latin edition). We have been unable to find any later reference that adds anything to our knowledge of the species until Giebel (1866: 384) described it as *Lipeurus platalearum*. The hosts were given by him as *Platalea ajlaja* and *leucorhodia*, but in 1874: 384 he dropped the former host-name. Harrison (1916: 17, 139) restored Linné's name and gave *platalearum* as a synonym. The species must stand as *Ardeicola plataleae* (Linné), 1758.

Our specimens of this species are from *Platalea leucorodia* from Jidda, Arabia, sufficient material not being available from the European Spoonbill. Although Eastern breeding birds have been separated as *P. l. major* Temminck and Schlegel on size, there is apparently considerable overlap in measurements, and it is doubtful whether this subspecies is recognizable; moreover, Redi obtained some of his material from non-Italian birds kept in the Boboli Gardens, and his Spoonbill may well not have been of the European form. We have, therefore, felt ourselves justified in erecting neotypes from Arabian breeding birds.

Measurements

	<i>Male</i>		<i>Female</i>	
	<i>Length</i>	<i>Breadth</i>	<i>Length</i>	<i>Breadth</i>
Head . . .	mm. 0.59	mm. 0.35	mm. 0.61	mm. 0.38
Abdomen . . .	1.60	0.42	1.74	0.52
Total . . .	2.80	..	3.00	..
Genitalia . . .	0.60	..	..	..

Neotype female (Pl. I, fig. 5 and Figs. 31-33) and *neallotype* male (Figs. 29-30, 32) of *Ardeicola plataleae* (Linn.), a female and male in the British Museum (Nat. Hist.) (slide No. 348) from *Platalea l. leucorodia* Linn. from Jidda, Arabia. *Neoparatypes*: 24 males and 26 females from the same host-form, Jidda and India (Rajputana).

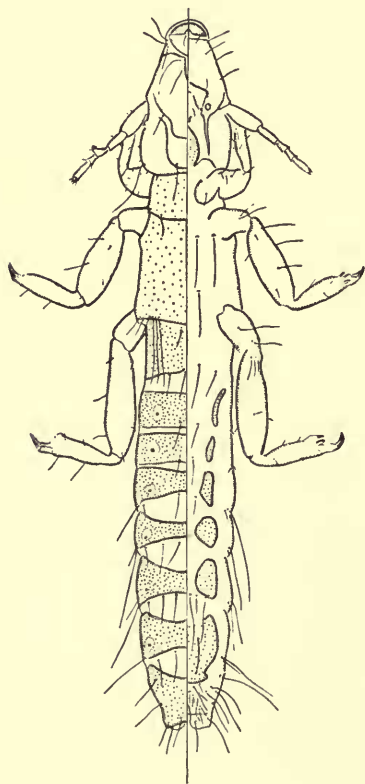


FIG. 29

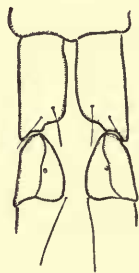


FIG. 31

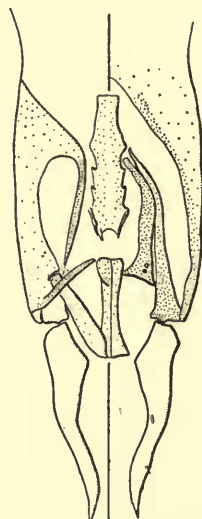


FIG. 30

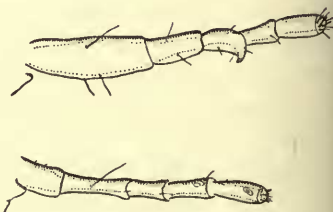


FIG. 32

FIGS. 29-32. *Ardeicola plataleae* (Linn.): 29. Male. 30. Male genitalia. 31. First two abdominal segments, ♀. 32. ♂ and ♀ antennae.

Neotype of *Ardeicola platalearum* (Giebel), a male (British Museum (Nat. Hist.), slide No. 420), from *Platalea l. leucorodia* Linn. from S. Spain, which agrees both with Giebel's description and with the neallotype of *A. plataleae* (Linn.).

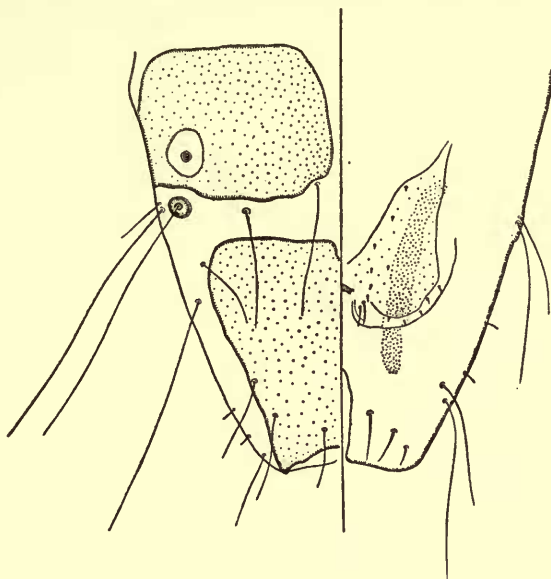


FIG. 33. *Ardeicola plataleae* (Linn.) ♀ terminal segments of abdomen.

Pediculus ardeae (p. 613)

Not seen by Linné, based on Redi's plate 6. The host-record is '*in Ardeis*' and the secondary appellation *P. Ardeae cinereae*.

Redi's plate 6 is a '*Pollino dell' Airone*', which is unquestionably the species now known as *Ardeicola ardeae* (Linné). It does not appear to have been found again until comparatively recent times, for the mentions in the literature are mere references until Stephens (1829: 332) quite unnecessarily renamed it *Lipeurus obtusus* and Burmeister (1838: 434) described it as *Lipeurus leucopygus*. Harrison's references (p. 130) to *ardeae-cinereae* Fabricius, 1794, and to *ardealis* Scopoli, 1763, are incorrect, for Fabricius' mention is a quotation of the reference for *ardeae* Linné and Scopoli's name refers to a totally different species which will be discussed later. Clay (1936: 615) made *ardeae* Linn. the type species of *Ardeicola*.

Measurements

	<i>Male</i>		<i>Female</i>	
	<i>Length</i>	<i>Breadth</i>	<i>Length</i>	<i>Breadth</i>
Head . . .	mm. 0.73	mm. 0.48	mm. 0.76	mm. 0.50
Abdomen . . .	1.59	0.68	1.95	0.68
Total . . .	2.86	..	3.24	..
Genitalia . . .	0.44	..	..	..

Neotype male (Figs. 34-35) and *neallotype* female (Figs. 36-37) of *Ardeicola ardeae* (Linn.) in the British Museum (Nat. Hist.) (slide No. 423) from *Ardea c. cinerea* Linné, from Liguria, Italy. *Neoparatypes*: 46 males and 86 females from the same host-form, from Great Britain, Eire, Uganda, and South Africa.

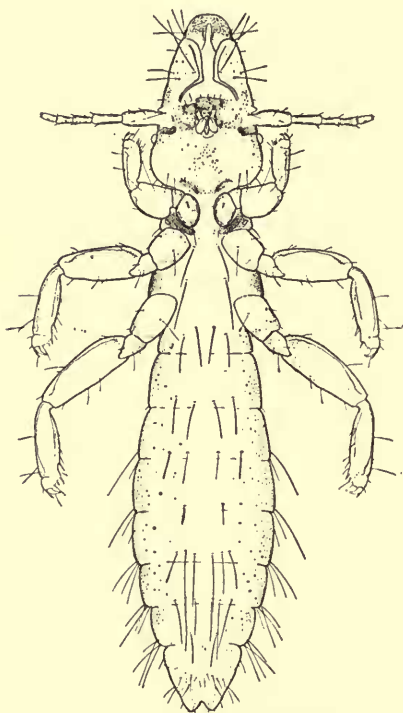


FIG. 34

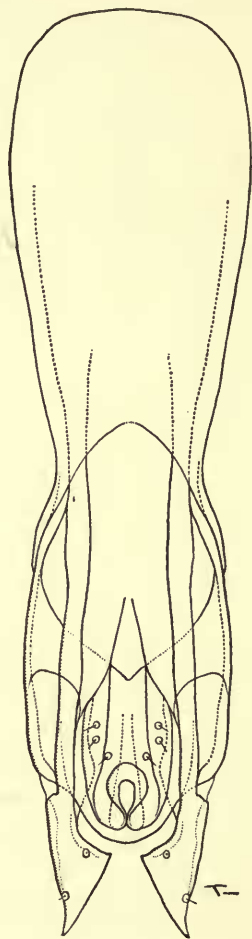


FIG. 35

FIGS. 34-35. *Ardeicola ardeae* (Linn.) 34. Male. 35. Male genitalia.

These neotypes automatically become neotypes of *Ardeicola obtusus* (Stephens).

Neotype of *Ardeicola leucopygus* (Burmeister): a female (Meinertzhagen collection slide No. 211) from *Ardea c. cinerea* Linn. from South Uist, Outer Hebrides, Scotland, which agrees with the neallotype of *A. ardeae* (Linn.).

Pediculus gruis (p. 613)

No description, but a reference to No. 1162 in *Fauna Suecica* and to Redi's plate 3. The host-record is 'in Gruibus' and the secondary appellation *P. Ardeae Gruis*. In *Fauna Suecica* there is a reference to 'Frisch. germ. 5. p. 15. t. 4' and the host-record

is 'in *Grue proprie dicta* 131'. Linné had not seen any material. Redi's plate is an absolutely unmistakable representation of the species which Harrison made the type species of his genus *Esthiopterum*, but that of Frisch shows a *Philopterus* (s.l.). Fabricius (1781: 481) gives a brief description of *gruis* which appears to have been drawn up

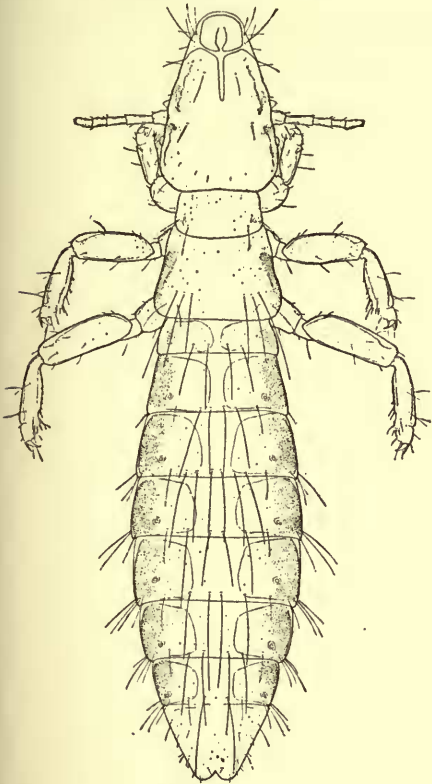


FIG. 36

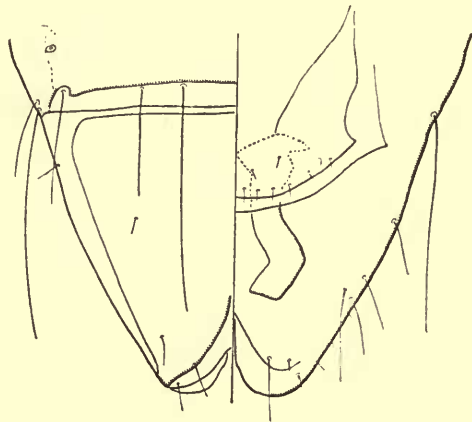


FIG. 37

FIGS. 36-37. *Ardeicola ardeae* (Linn.): 36. Female. 37. Terminal segments of ♀ abdomen.

from Redi's figure and which could be taken as a restriction of the name, as also must the fact that Linné dropped the reference to Frisch in 1758. Nitzsch (1818: 293) published the name *Ph. (Lipeurus) ebraeus*, but as this was also based on Redi's plate it is necessarily a synonym of *gruis* and our neotypes are those of both names. Giebel (1874: 226, pl. 16, figs. 5, 6) 'emended' the name *ebraeus* to *hebraeus*.

Measurements

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	mm. 1.06	mm. 0.87	mm. 1.16	mm. 0.98
Abdomen . . .	2.80	1.04	3.20	1.45
Total . . .	4.82	..	5.40	..
Genitalia . . .	2.02*	..	..	..

Neotype male and *neallotype* female (Figs. 38-41) of *Esthiopterum gruis* (Linn.) in the British Museum (Nat. Hist.) (slide No. 407) from *Megalornis g. grus* (Linn.) from Genoa, Italy. *Neoparatypes*: 50 males and 57 females from the same host-form, from Germany, Finland, and Algeria.

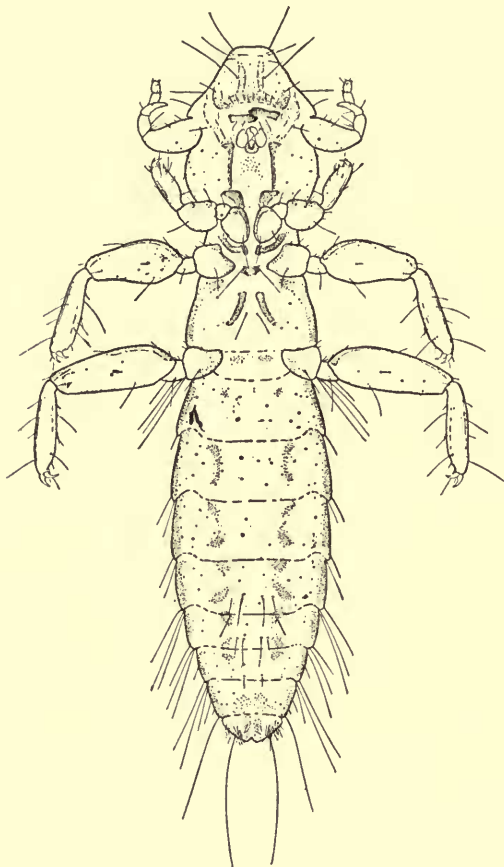


FIG. 38

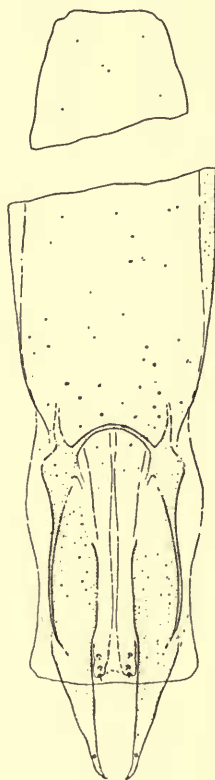


FIG. 39

FIG. 38-39. *Esthiopterum gruis* (Linn.): 38. Male. 39. Male genitalia.

It is perhaps not irrelevant to insert here a note as to the genus *Esthiopterum*. Harrison erected this genus (1916: 26) for species of *Lipeurus* which do not possess a circumfasciate head, *Esthiopterum* (*Lipeurus*) *ebraeum* Burmeister being designated typespecies. Later (1937: 25) he considered that the fact that he had included *Pseudonirmus charcoti* (Neumann), the type species of *Pseudonirmus* Mjöberg, in *Esthiopterum* made this genus a synonym of *Pseudonirmus* and he changed the name to *Esthiopterella* with *E. gruis* Linn. as type species. This view is quite incorrect and the name *Esthiopterella* is unnecessary and must be abandoned in favour of *Esthiopterum*.

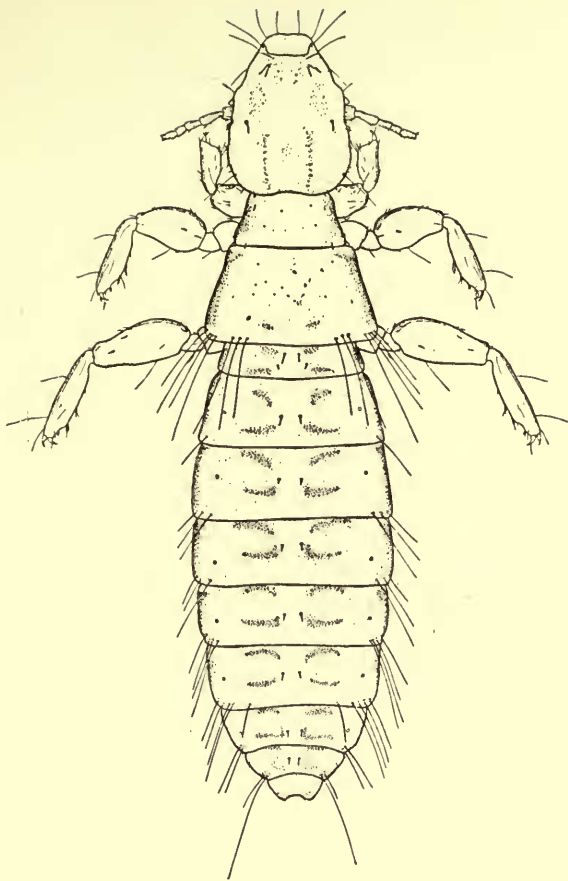


FIG. 40

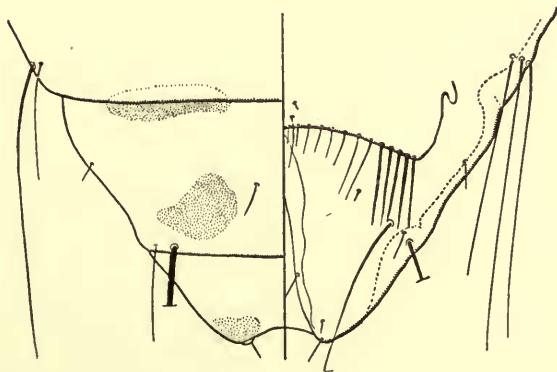


FIG. 41

FIGS. 40-41. *Esthiopterum gruis* (Linn.): 40. Female.
41. Terminal segments of ♀ abdomen.

Pediculus ciconiae (p. 613)

Although there is no description, Linné had seen specimens; the reference is '*Frisch. Ins. 8. p. 9. t. 6*', the host-record '*in Ciconiis*', and the secondary appellation *P. Ardeae Ciconiae*. Frisch's plate shows figures of a male and female *Ardeicola*.

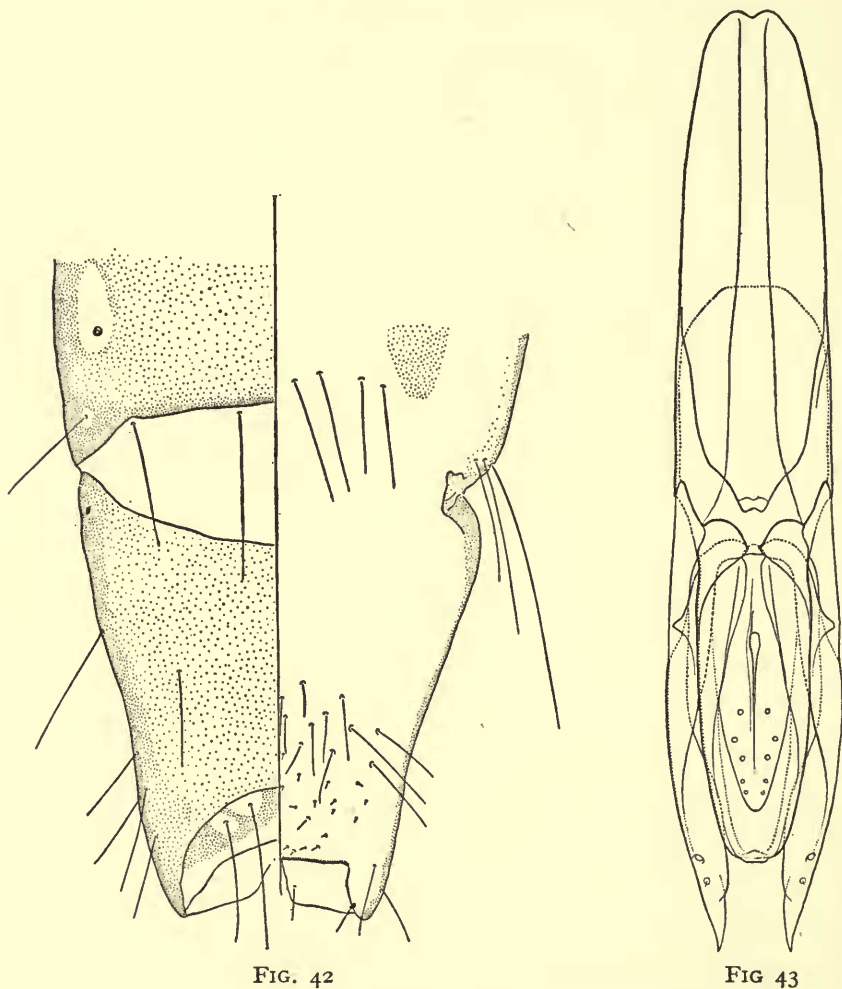


FIG. 42

FIG 43

FIGS. 42-43. *Ardeicola ciconiae* (Linn.) ♂: 42. Terminal segments of abdomen.
43. Genitalia.

Fabricius (1775: 808) described what is undoubtedly Linné's species as '*elongatus filiformis, abdomine albo: lateribus nigro punctatis*'. Nitzsch (1818: 292) renamed the species *Phil. (Lipeurus) versicolor*, and it was generally known under this name until Harrison restored Linné's name and transferred the species to *Esthiopterum*.

This species (Figs. 42-44; Pl. II, figs. 3-4) shows the characteristics of typical *Ardeicola* and is distinguished from related species by the shape of the head, terminal

segments of the abdomen in both sexes, and the male genitalia. In the male tergal plates II-IV are divided medially, in the female tergal plates II-VIII are divided.

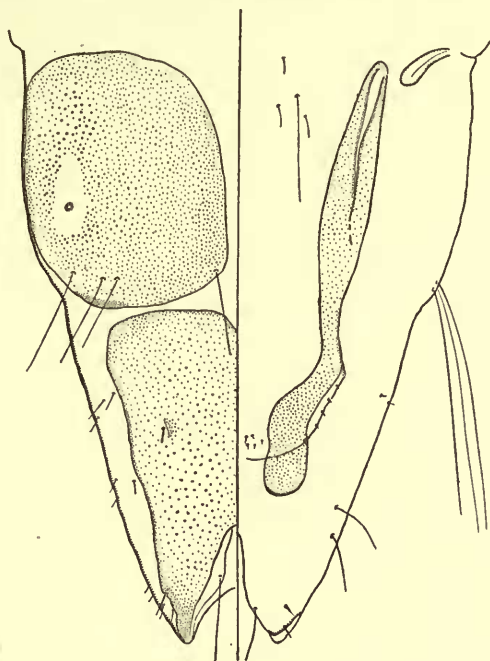


FIG. 44. *Ardeicola ciconiae* (Linn.) terminal segments of ♀ abdomen.

Measurements

	Male		Female	
	Length	Breadth	Length	Breadth
	mm.	mm.	mm.	mm.
Head . . .	0.93	0.58	0.95	0.58
Abdomen . . .	3.12	0.77	3.00	0.80
Total . . .	4.70	..	4.81	..
Genitalia . . .	1.36*	..	..	..

Neotype male and *neallotype* female of *Ardeicola ciconiae* (Linn.) in the Meinertzhagen collection (slide No. 7857), from *Ciconia c. ciconia* (Linn.) from Sudan. *Neoparatypes*: 59 males and 45 females from the same host-form from Europe (captive bird), Sudan, Kenya, Uganda, and South Africa.

These neotypes are necessarily also neotypes of *Ardeicola versicolor* (Nitzsch).

Pediculus charadrii (p. 613)

No description, and marked by Linné as not seen by him, but with a reference to Redi's plate 9. The host-record is '*in Pluvialibus*' and the secondary appellation *P. Charadrii Pluvialis*.

Redi's plate 9 does not contain plover-parasites, but plate 11 shows two '*Pollini del Piviere*' (in the Latin edition '*Pulices avis Pluvialis*') and is obviously the reference intended by Linné; the upper or left-hand figure is an *Actornithophilus* and the other a *Quadraceps*.

Müller (1775: 1035) gives a very brief description of '*Die Grillvogellaus. P. charadrii*' which runs 'Sie hat ein eckiges Bruststück und ist an den Seiten gerändelt'. If this is

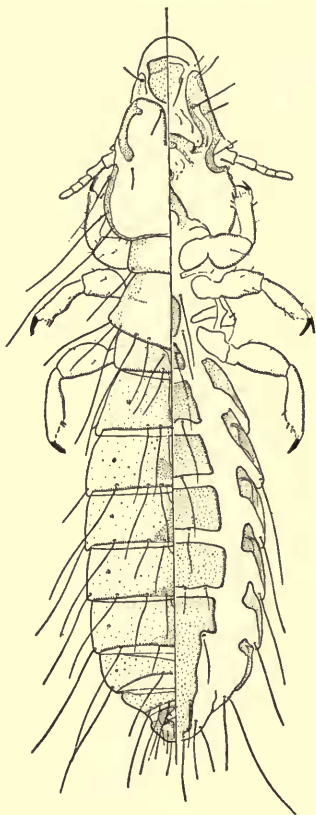


FIG. 45

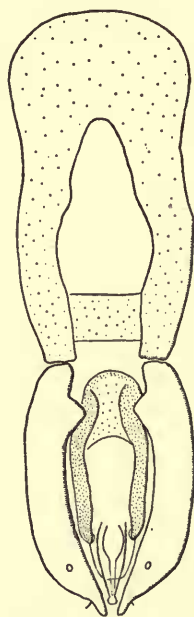


FIG. 46

FIGS. 45-46. *Quadraceps charadrii* (Linn.): 45. Male. 46. Male genitalia.

an original description it seems to us completely meaningless; if we assume that it is a description of Redi's drawings rather than of actual specimens, then the angular '*Bruststück*' (? prothorax) seems to refer to the *Actornithophilus* but the margined sides seem more like the *Quadraceps*. We cannot regard anything so completely vague as a restriction.

Nitzsch (1818: 298) renamed the upper figure of Redi's plate as *Liotheum* (*Colpocephalum*) *ochraceum*; Harrison (1916: 12) rejects *charadrii* on the inadequate grounds that 'neither figure is specifically referred to'. In order not to disturb Nitzsch's name *L. ochraceum*, we restrict *charadrii* Linné to the lower or right-hand figure on Redi's plate; *ochraceum* will be dealt with under Nitzsch, 1818.

'Piviere' is the Italian vernacular name for *Charadrius apricarius* Linn., and *C. pluvialis* (the host mentioned by Linné) is a synonym. Two subspecies of *apricarius* occur as migrants to Italy, where Redi probably obtained his material, and we have chosen one of these as type-host of the louse.

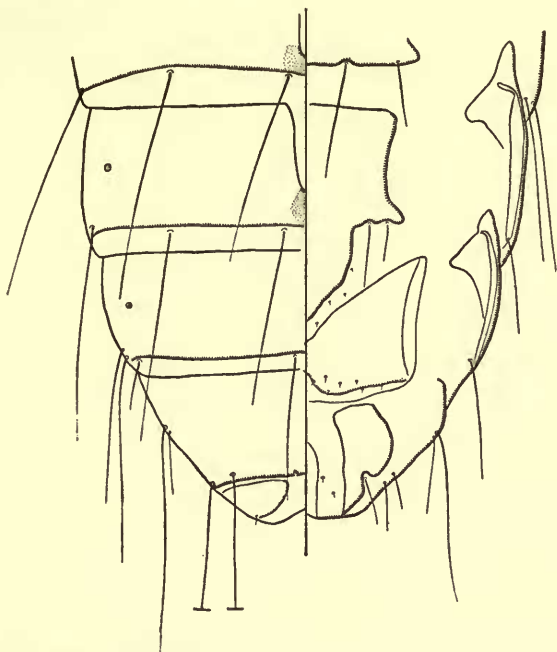


FIG. 47. *Quadraceps charadrii* (Linn.): terminal segments of ♀ abdomen.

Measurements

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	mm. 0.43	mm. 0.30	mm. 0.47	mm. 0.32
Abdomen . . .	0.83	0.40	1.11	0.42
Total . . .	1.56	..	1.90	..
Genitalia . . .	0.23	..	..	..

Neotype male (Figs. 45-46) and *neallotype* female (Fig. 47, Pl. II, fig. 5) of *Quadraceps charadrii* (Linn.) in the Meinertzhagen collection (slide No. 11559) from *Charadrius apricarius oreophilus* A. C. Meinertzhagen from Scotland. *Neoparatypes*: 22 males and 10 females from the same host-form, Scotland and Ireland.

Pediculus fulicae (p. 613)

No description, and marked by Linné as not seen. The host-record is 'in *Fulicis*' and the secondary appellation *P. Fulicae atrae*. The reference is to Redi's plate 4, which depicts three 'Pollini della Folaga', a *Eulaemobothrion* (fig. I), a *Fulicoffula* (fig. II), and an *Incidifrons* (fig. III).

There is no formal restriction of *Pediculus fulicae* in the old literature. Müller (1775: 1035) states 'Sie führet am After viele gleichweitig stehende lange Härchen', which applies equally to all three genera; von Olfers (1816: 19) comes near to a restriction when he drops Redi's fig. 2 and suggests that figs. 1 and 3 are male and

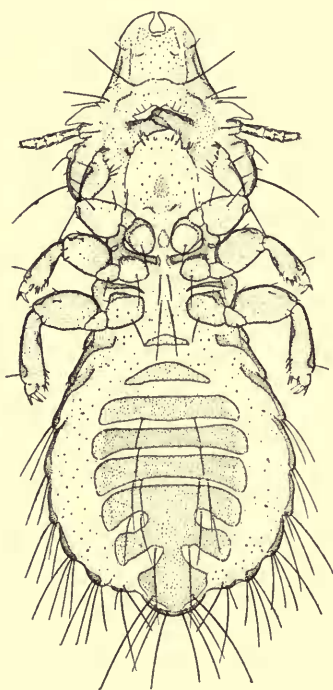


FIG. 48

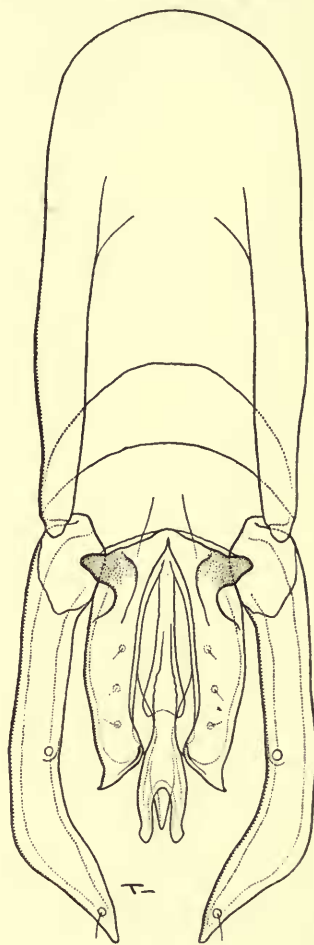


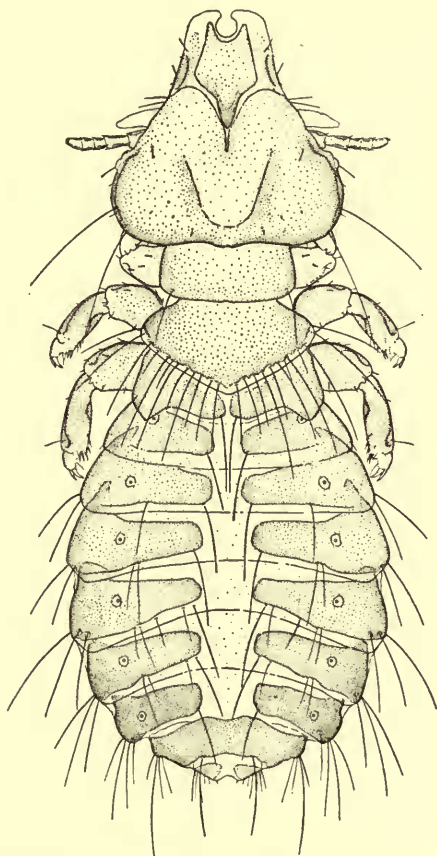
FIG. 49

FIGS. 48-49. *Incidifrons fulicae* (Linn.): 48. Male. 49. Male genitalia.

female of one species, but he still includes the *Eulaemobothrion* and the *Incidifrons*. But Schrank (1803: 191) describes as *Pediculus fulicae* a species from 'Blässhuhn' (= *Fulica atra* Linn.) which is quite definitely the *Incidifrons* even without his reference to fig. 3 of Redi's plate, and the obvious course is to accept this as a restriction although he gives no reference to Linné. The matter has been dealt with at some length by one of us (Hopkins, 1940: 421, 422) and the name *fulicae* Linné formally restricted to the *Incidifrons*. The synonymy was also dealt with in the same paper.

Measurements

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	mm. 0.53	mm. 0.48	mm. 0.58	mm. 0.60
Abdomen . . .	0.76	0.63	1.18	0.88
Total . . .	1.50	..	2.03	..
Genitalia . . .	0.40	..	..	..

FIG. 50. *Incidifrons fulicae* (Linn.) female.

Neotype male (Figs. 48-49) and *neallotype* female (Figs. 50-51) of *Incidifrons fulicae* (Linn.) in the Meinertzhagen collection (slide no. 4941) from *Fulica a. atra* Linn. from England. *Neoparatypes*: 46 males and 53 females from the same host-form, from England, Scotland, India (Sind and Rajputana), Macedonia, Italy, and Morocco.

Neotype of *Incidifrons pertusus* (Burmeister): a male (Meinertzhagen collection slide No. 2934) from *Fulica a. atra* Linn. from England, which agrees with the *neotype* of *I. fulicae* (Linn.).

Pediculus recurvirostrae (p. 613)

There are references to *Fauna Suecica* and to 'It. oel. 90' and Linné had seen the species. The host-record is 'in *Recurvirostris*' and the secondary appellation *P. Recurvirostrae Avosettae*.

The description in *Fauna Suecica* is: '*Corpus fuscum, oblongum. Caput obsolete triangulum, acuminatum, linea transversalis excavata in medio. Abdomen oblongum, fere lineare, in medio paulo latius, incisuris octo. Pedes breves, curvi. Antennae breves,*

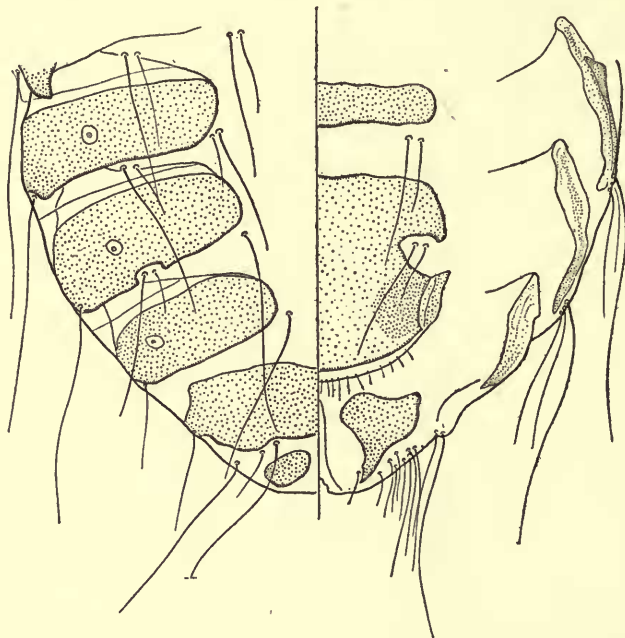


FIG. 51. *Incidifrons fulicae* (Linn.): terminal segments of ♀ abdomen.

parvae, capitatae.' The host-record is '*Habitat in Numenio Recurvirostro albo nigroque-variegato. 137*' (= *Recurvirostra avosetta* Linn.).

The reference to *It. oel. 90* (1745) is quite unhelpful; there is no mention of the Avocet on p. 90, but on p. 9 the bird is mentioned, with the remark '*om ganska många insekter*'.

J. C. Fabricius (1775: 808) refers to Linné and gives a description which appears to be an abbreviation of Linné's. Later authors have mentioned the species without being able to decide as to what it is, and Harrison (1916: 18) places it in *Degeeriella* but rejects it as unrecognizable.

Of the species known from *Recurvirostra avosetta*, those later described as *Nirmus pileus* Nitzsch and *N. signatus* Piaget could each be regarded as having an almost linear abdomen in the female sex, whereas none of the other species (nor the males of these two) could well be so described. *N. pileus* is the only one in which the female has a *corpus fuscum*, its head is more triangular than that of any of the other species, and it is the only one in which we would describe the head as acuminate. The *linea*

transversalis excavata in medio on the head is found in both *pileus* and *signatus*, though it is plainer in the latter. The eight incisions on the abdomen are present in both species and the antennae are not capitate in either but can appear so in both when the insect is examined with a hand-lens.¹ The legs are more obviously short in *pileus*. The balance of probability is strongly in favour of Linné's insect having been *N. pileus* Nitzsch (as figured by Piaget, 1880). The species is very aberrant and may require a new genus, but we refer it provisionally to *Quadraceps*.

Measurements

	Male		Female	
	Length	Breadth	Length	Breadth
	mm.	mm.	mm.	mm.
Head . . .	0.61	0.59	0.68	0.67
Abdomen . .	1.50	0.65	2.32	0.98
Total . . .	2.62	..	3.60	..
Genitalia . .	0.52*	..	..	..

Neotype female (Figs. 52-53) and *neallotype* male (Figs. 54-55) of *Quadraceps recurvirostrae* (Linn.) in the Meinertzhagen collection (slide No. 11011) from *Recurvirostra a. avosetta* Linn. from Russia. *Neoparatypes*: 49 males and 27 females from the same host-species from Russia, Palestine, Turkey, Kenya, and South Africa.

Neotype of *Quadraceps pileus* (Nitzsch): a male (Meinertzhagen collection, slide No. 8024) from *Recurvirostra a. avosetta* Linn. from Palestine, which agrees with the neallotype of *Q. recurvirostrae* (Linn.).

Pediculus haematopi (p. 613)

The species is not described, but there is a reference to *Fauna Suecica* and Linné had seen material. The host-record is 'in *Haematopis*' and the secondary appellation *P. Haematopi Ostralegi*.

In *Fauna Suecica* the host is given as *Haematopus bellonii* and the species is described as: '*Magnitudo pulicis. Totus glaucus. Caput subrotundum, glaberrimum, convexoplanum. Abdomen obverse ovatum incisuris decem, transversis, pallidis. Pedes breves. Antennae brevissimae. Thorax angustissimus. Pili ad latera posterioris abdominis.*'

Subsequent authors add nothing to our knowledge of this species, but Gmelin (1788: 2919) altered the name to *haematopodis* and was followed in this by Fabricius (1805: 347); Stephens (1829: 332) renamed it *Nirmus glaucus*. Harrison (1916: 15) discards it on the grounds that the genus is not recognizable with certainty, but even if this were adequate we claim that his belief is incorrect; the description definitely indicates the Ischnocera and of the Ischnocera parasitic on the Oyster-catcher only the species mentioned by Giebel in 1866 (p. 361) as *Docophorus Haematopi* (a *nomen nudum*) and described by him in 1874 (p. 101) as *Docophorus acanthus* agrees at all with the description in *Fauna Suecica*. Linné's specimen appears to have been a nymph or perhaps a teneral adult.

¹ We considered the possibility that this character might mean that Linné's material belonged to the Amblycera, but other points in the description are irreconcilably at variance with this suggestion.

Details of both sexes of *Docophorus acanthus* have been well figured by K  ler (1936: 263, figs. 2 b, 2 d) as the type species of *Hastaeophorus* (= *Saemundssonina* Timmermann).

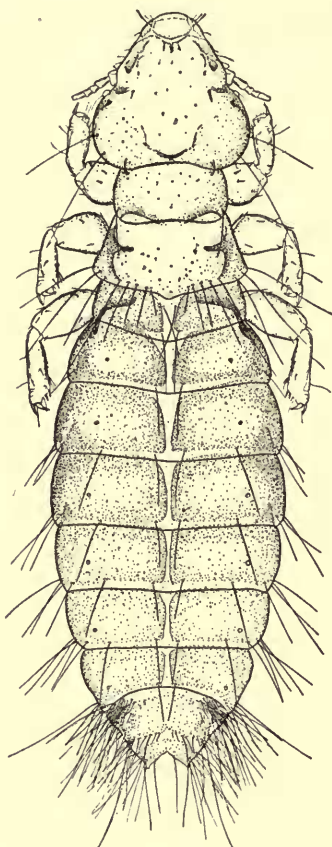


FIG. 52

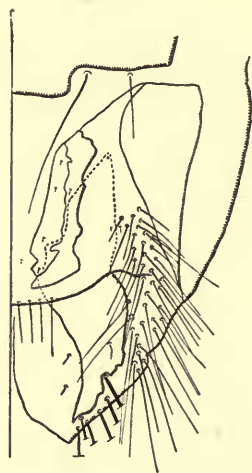


FIG. 53

FIGS. 52-53. *Quadriceps recurvirostrae* (Linn.): 52. Female.
53. Terminal segments ♀ abdomen.

Neotype male and *neallotype* female of *Saemundssonina haematopi* (Linn.) a pair, agreeing with K  ler's figures referred to above, in the Meinertzhagen collection (slide No. 10568) from *Haematopus o. ostralegus* Linn. from Ireland. *Neoparatypes*: 34 males and 43 females from the same host-form from Great Britain and Eire.

The neotypes are automatically neotypes of *Saemundssonina haematopodis* (Gmelin) and *Saemundssonina glaucus* (Stephens), also.

Neotype of *Saemundssonina acanthus* (Giebel), a male (Meinertzhagen collection, slide No. 2352) from *Haematopus o. ostralegus* Linn. from Scotland, which agrees with the neotype of *S. haematopi* (Linn.).

Pediculus pavonis (p. 613)

No description and marked by Linné as not seen, but with references to '*Frisch. ins.* 12. t. 3. f. 6' and Redi's plate 15. The secondary appellation is *P. Pavonis cristati*.

There has never been any serious dispute about this species; Frisch's figure represents a female *Goniodes* and Redi's shows a young nymph of the same species. Later

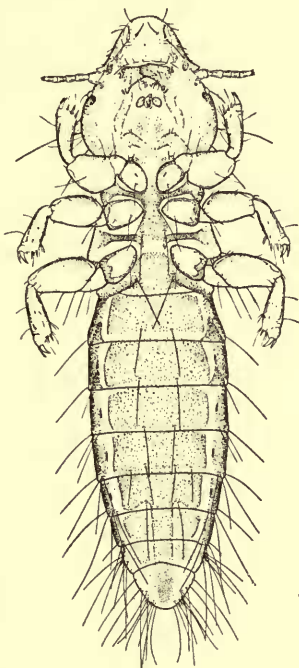


FIG. 54

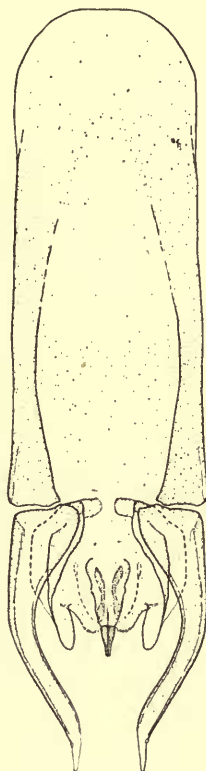


FIG. 55

FIGS. 54-55. *Quadraceps recurvirostrae* (Linn.): 54. Male. 55. Male genitalia.

authors add very little of value, but Gmelin (1788: 2919) adds an erroneous reference to Geoffroy (1762), whose species is a turkey-parasite. Nitzsch (1818: 293) proposed the name *Phil. (Goniodes) falcicornis* for *Pediculus pavonis* Linn. and Fabr., and added references to Panzer (1798) and Redi plate 14 (an adult male of the same species).

Neotypes of *Goniodes pavonis* (Linn.) have already been designated by one of us (Clay, 1940: 7). These specimens are also neotypes of *Goniodes falcicornis* (Nitzsch).

Pediculus meleagridis (p. 613)

There is no description, but there are references to *Fauna Suecica* and '*Frisch. ins.* 8. t. 4' and a queried reference to Redi's plate 22. The host-record is '*in Gallo-pavonibus*' and the secondary appellation is *P. Meleagridis Gallo-pavonis*. Linné had seen specimens.

As the reference to Redi is queried we can leave it out of account; Frisch's figure certainly represents the common *Chelopistes* of the Turkey. In *Fauna Suecica*, 1746, there is a description and a reference (dropped in 1758) to Redi's plate 1; the description seems certainly to refer to the turkey *Chelopistes* and the left-hand figure on Redi's plate 1, though nominally a hawk-parasite, shows a strong resemblance to the same species.

Geoffroy (1762: 600) called the species *Pediculus galli-pavonis*, but (as will be shown below) this, in spite of appearances, is not a name, and his description is merely a translation of that in *Fauna Suecica*. Schrank (1781: 504, pl. 1, fig. 4) described and figured it under Linné's name; though he questioned whether his species was the same as that of Linné, there is no doubt that it was. In 1818 (p. 294) Nitzsch proposed *Ph. (Goniodes) styliifer* as a *nomen novum* for *P. meleagridis* Schrank, and it has many times been described under this name and the 'emendation' *styliiferum* Taschenberg. Harrison (1916: 16, 77) restored Linné's name.

Neotypes of *Chelopistes meleagridis* (Linn.) have already been selected (Clay, 1941: 124). They are not neotypes of *C. styliifer* (Nitzsch) nor of *C. styliiferum* (Taschenberg), because the former is a renaming of *Pediculus meleagridis* Schrank (not of *P. meleagridis* Linn., although these are the same) and the latter has an independent description.

Pediculus gallinae (p. 613)

There is a very brief description '*thorace capiteque utrinque mucronato*' and a reference to *Fauna Suecica*, where there is a more detailed description. The secondary appellation is *P. Phasiani Galli* and the host-record is '*in Gallinis domesticis*'. The species was redescribed and figured under Linné's name by Schrank (1776: 114, pl. 5, fig. 2) and by Panzer (1798: 21); Nitzsch (1818: 299) proposed the name *Lio. (Menopon) pallidum* for it, quoting Redi plate 17 and Panzer, but not Linné. There has never been any real doubt about the identity of the species.

Menopon gallinae (Linn.) has been very well figured by Ferris (1924: 57, fig. 1), but in the male genitalia the 'parameres' of Ferris should have bulbous ends and the structure 'X' is in fact a paired structure, as shown in Fig. 56, X.

Neotype male and *neallotype* female of *Menopon gallinae* (Linn.) in the Meinertzhagen collection (slide No. 2490) from *Gallus domesticus* from Scotland; these specimens agree with Ferris's figures (referred to above) except for the details of the male genitalia mentioned. *Neoparatypes*: 24 males and 47 females from the same host from Great Britain, Roumania, Uganda, British Guiana, and Colombia. These neotypes are not also neotypes of *Menopon pallidum* (Nitzsch) because Nitzsch did not include Linné among his references.

Neotype of *Menopon pallidum* (Nitzsch) a male (Meinertzhagen collection, slide No. 4920) from *Gallus domesticus* from England, which agrees with the neotype of *M. gallinae* (Linn.).

Pediculus caponis (p. 614)

The host-record and secondary appellation are the same as for *gallinae*. There are references to '*Frisch. ins. 11. t. 24*', to Redi's plate 16, fig. 1, and to *Fauna Suecica*. Frisch's figure is a *Laemobothrion* and the upper figure on Redi's plate 16 is *Menopon*

gallinae (Linn.), but the description in *Fauna Suecica* is undoubtedly a *Lipeurus* and the name has long been accepted in this sense. The first author to note the discrepancy was Schrank (1803: 193); he notes that neither of the figures to which Linné referred are this species and gives a short new description which definitely refers to the *Lipeurus* and which should be accepted as a restriction of the previously composite

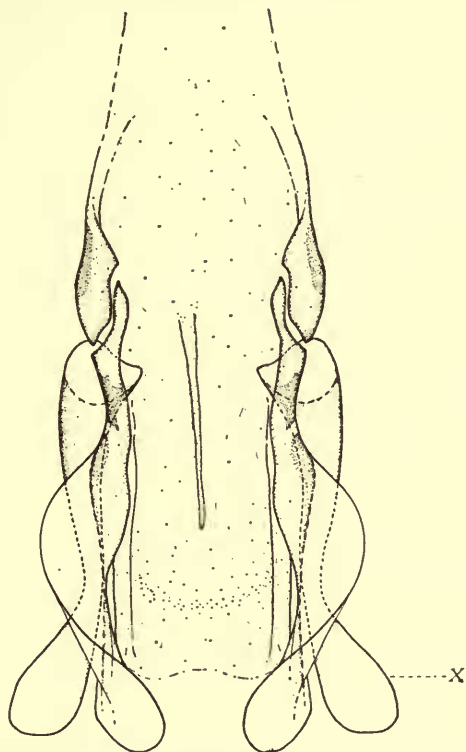


FIG. 56. *Menopon gallinae* (Linn.): ♂ genitalia.

P. caponis Linn. In any case we must go by what Linné had before him, as indicated by his description, and not by his errors. Fortunately application of the name *caponis* to the *Lipeurus* is in accordance with modern usage.

The species has been described and figured in detail by one of us (Clay, 1938: 112, figs. 1, 2 a, b, 3 a). Synonymy was discussed in the same paper, but we wish to add that *Nirmus tessellatus* Denny, described from a nymph supposedly obtained from a bittern, is a *Lipeurus* and should be assumed to be *L. caponis* (Linn.), as it probably actually is (see Clay, 1940: 431).

Neotype male and *neallotype* female of *Lipeurus caponis* (Linn.) in the Meinertzhagen collection (slide No. 4930), selected from the material utilized for Clay's redescription and figures (Clay, 1938), from *Gallus domesticus*, Great Britain. *Neoparatypes*: 19 males and 18 females from the same host-form and locality.

Neotype of *Lipeurus variabilis* Burmeister: a male (Meinertzhagen collection, slide No. 2488) from *Gallus domesticus* from Great Britain which was compared with the

type of *L. variabilis* by Dr. S. Kéler in 1936, and which agrees with the neotype of *L. caponis* (Linn.).

Pediculus tetraonis (p. 614)

There is no description and a reference to Redi is queried, so *tetraonis* is a *nomen nudum* so far as the publication under consideration is concerned, but Linné described the species in the 1761 edition of *Fauna Suecica* and it will be dealt with under that work.

Pediculus lagopi (p. 614)

Linné gives a reference to a description in *Fauna Suecica* and the secondary appellation is *P. Tetraonis Lagopi*.

Harrison (1916: 15) discarded the name as unrecognizable, but Waterston (1926: 89-91) showed conclusively that the mention of the fruits of *Capsella bursa-pastoris* and *Veronica* constitutes an unmistakable reference to the shape of a *Goniodes* and that *Goniodes lagopi* (Linn.) must replace the various other names that have been applied to the *Goniodes* of *Lagopus lagopus*.

Neotype of *Goniodes lagopi* (Linn.), selected by Clay (1940: 48), in the Meinertzhagen collection (slide No. 1576), from *Lagopus l. lagopus* (Linn.), from Estonia. The synonymy was dealt with in the same paper. The neotype of *Goniodes lagopi* (Linn.) is also automatically the neotype of *G. lagopodis* (Gmelin).

Pediculus columbae (p. 614)

Without description, and marked as not seen, but with a reference to '*Red. exper. t. 2 f. 1*'. The host-record is '*in Columbibus*' and the secondary appellation is *P. Columbae Oenatis*.

Redi's plate is not good but the figure to which Linné refers is quite obviously a *Columbicola*; it is labelled '*Pollino del Piccion grosso*' (in the Latin edition '*Pulex Columbae majoris*'). As Linné had not seen specimens his mention of *Columba oenas* cannot be accepted as a designation of a type-host unless there is some confirmation, for the name owes all its validity to Redi's plate. But we consider it more than probable that the mention of *C. oenas* is not only unwarranted but erroneous. On the same plate Redi shows a '*Pollino della Tortora*' (a mite), and this suggests very strongly that '*Piccion grosso*' is merely used in contrast to the Turtle-dove and applies to the domestic pigeon. The latter is by far the most likely host of Redi's specimens, and it was from this host that all other authors redescribed the species for many years after. Eichler (1941: 276) designated *C. livia domestica* as type-host of the species; although this action has no validity (since Eichler did not erect neotypes), it is an additional reason for making this species the host of the neotypes.

Geoffroy (1762: 599) redescribed the species, but his 'name' for it is a descriptive phrase and not binominal; Fabricius (1775: 809) redescribed it under Linné's name. Schrank (1776: 114, pl. 5, fig. 3) had been unable to consult Redi's work and therefore doubted if his species was the same as that of Linné, whose name he applied to it, but his figure shows a nymph of the same species. Nitzsch (1818: 293) proposed the name *Ph. (Lipeurus) baculus* for the species shown on Redi's plate and '*Ped. columbae*

Panzer'; his host-record is '*Columbarum plur.*', for which must be substituted *C. livia domestica*.

Measurements

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	mm. 0.52	mm. 0.28	mm. 0.55	mm. 0.28
Abdomen . . .	1.24	0.35	1.62	0.38
Total . . .	2.14	..	2.62	..

Neotype male (Figs. 57-58) and *neallotype* female (Fig. 59) of *Columbicola columbae* (Linn.) in the British Museum (Nat. Hist.) (slide No. 409-410) from *Columba livia domestica* from Florence, Italy. *Neoparatypes*: 42 males and 54 females from the

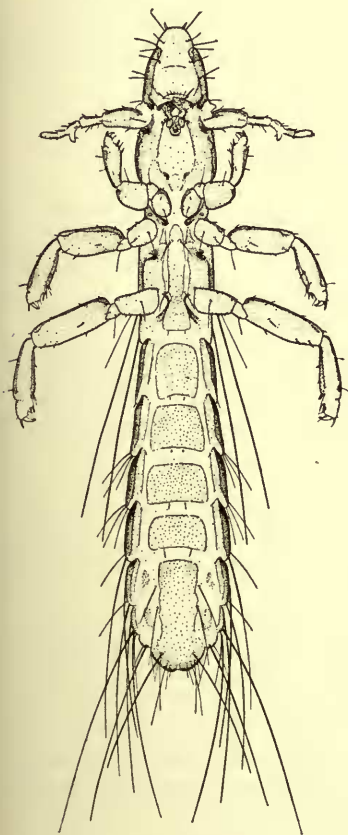


FIG. 57

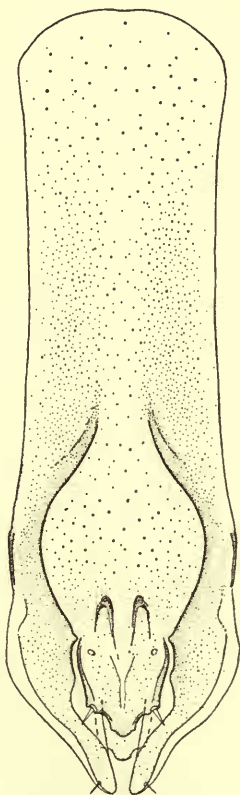


FIG. 58

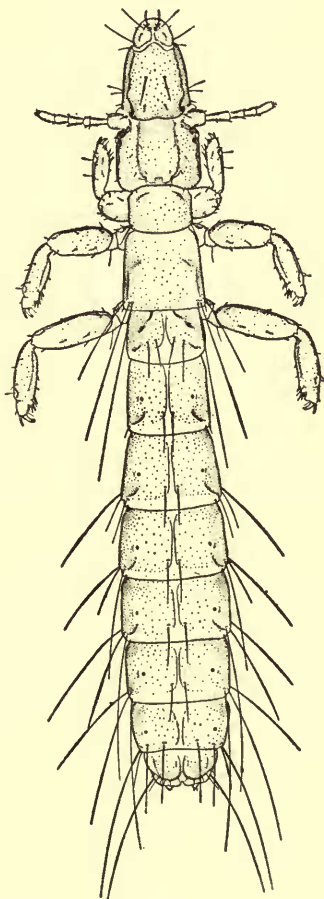


FIG. 59

FIGS. 57-59. *Columbicola columbae* (Linn.): 57. Male. 58. ♂ genitalia. × 342. 59. Female.

same host-form from Italy and London and from *Columba l. livia* Linn. from the Orkney Isles.

Because of the reference to Panzer, the neotypes of *Columbicola columbae* are not also automatically neotypes of *C. baculus* (Nitzsch), but we select the male as lecto-type of the latter name.

Pediculus pari (p. 614)

There is a very brief description: 'cauda quadriseta; and a reference to 'Frisch. ins. 8. p. 9. t. 1. f. 5.' This is not a member of the Mallophaga. It is perhaps a mite.

LINNÉ, 1761 (*Fauna Suecica*: 476-479)

Besides the names dealt with below, this work also contains three other appellations which must be mentioned: under *Pediculus meleagridis* the reference to Redi, t. 1, f. 2, is followed by the words '*Pediculus Accipitris*', under *Pediculus caponis* the reference to Redi, t. 16, is followed by '*Pulex capi*', and that to Frisch 11: 24 by '*Pediculus galli*'. In the case of Redi's plates it is clear that Linné copied the captions of the plates in the Latin edition except for the change of *Pulex accipitris* to *Pediculus Accipitris*; in fact, throughout this 1761 edition of *Fauna Suecica* all references to Redi's plates are followed by the caption appearing in the Latin edition of Redi, but in nearly all cases Linné retained the genitive of the host-name (e.g. '*tinnunculi*', '*caponis*') as the specific portion of the insect's name. The case of the mention of '*galli*' under Frisch is less clear; the reference is to Frisch's '*Hüner-Geyer-Laus*', which is presumably the *Hühnergeier-Laus*, or louse of *Circus aeruginosus*, and Frisch's figure supports this presumption, for (in spite of a discrepancy in size) it apparently represents a *Laemobothrion*. One must suppose that Linné, intending to give a Latin translation of the German name used by Frisch, translated only part of it, i.e. '*Hüner-Laus*' = *Pediculus galli*—possibly Linné thought that '*Hüner-Geyer*' represented two bird-species,¹ whereas it is in fact the name of one species.

Taking into account Linné's system of nomenclature, there seems no doubt that *Pediculus accipitris*, *P. capi*, and *P. galli* are merely Latin translations of the original Italian and German names and must, therefore, be considered as vernacular names.

Pediculus tauri (p. 476)

The brief description given in 1758 (p. 611) for *Pediculus bovis* is repeated, together with the reference to No. 1155 in the 1746 edition of *Fauna Suecica* and the five-line description given in the latter work. *Pediculus tauri* is, therefore, an unnecessary *nomen novum* for *Pediculus bovis* (Linn.).

The neotypes of *Damalinia bovis* (Linn.) are automatically also neotypes of *Damalinia tauri* (Linn.).

Pediculus tetraonis (p. 478)

This species, included in 1758 as a *nomen nudum*, has here a description that unquestionably refers to a *Goniodes*. *Goniodes tetraonis* Denny (*partim*) and *G. heterocerus* Nitzsch are synonyms of *G. tetraonis* (Linn.).

¹ As Harrison did in such cases as *Ardea ciconia*, *Motacilla troglodytes*, *Hirundo apus*, and *Coracias oriolus*.

Neotype of *Goniodes tetraonis* (Linn.), erected by Clay (1940: 42), in Meinertzhagen collection (slide No. 1572) from *Lyrurus t. tetrax* (Linn.) from Estonia.

Pediculus hirundinis (p. 479)

The insect is described as '*pallescent, abdomine obovato albo nigro contaminato lateribus setis posticis majoribus. Habitat in Hirundine apode.*'

Only two genera are known from the Apodidae, for *Menopon parvulum* Piaget is a *Menacanthus* and the host-record almost certainly erroneous. Not only does Linné's description fit *Dennysus* much better than *Eureum* (which has an almost circular abdomen), but *Eureum* appears to be extremely rare¹ and is most unlikely to have been the species observed by Linné.

We have, therefore, no hesitation in deciding that *Pediculus hirundinis* Linné must have been a *Dennysus*.

The subsequent history of the name is peculiar. J. C. Fabricius (1775: 810) copied from *Fauna Suecica* the name, host-record, and part of the description, slightly re-worded ('*pallescent, abdomine albo, nigro maculato*', '*Abdominis latera setosa*'), and Schrank (1803: 810) got very completely muddled over the name. He first described (p. 193) as *Pediculus hirundinis* a species that he claimed to be the one described in *Fauna Suecica* and then (p. 194) described a *Pediculus prognos* that he asserted to be *Pediculus hirundinis* Fabricius *nec* Linné; his host-record for both names is *Hirundo urbica*. *Pediculus hirundinis* Schrank and *P. prognos* Schrank will be dealt with under that author's work, and we need only note here that *Pediculus hirundinis* Fabricius does not exist (being *P. hirundinis* Linn.), that the host mentioned by both Linné and Fabricius is *Hirundo apus*, now known as *Apus apus* (Linn.), and not any member of the Hirundinidae, and that neither of Schrank's species is *Dennysus hirundinis* (Linn.).

The species was redescribed by von Olfers in 1816 as *Nirmus truncatus*, which will be dealt with under his work. Denny (1842: 202, 231, pl. 22, fig. 5) redescribed it as *Nitzschia burmeisteri* and Nitzsch (in Giebel, 1866: 391) as *Menopon pulicare*. But Denny (1842: 231) and Giebel (1861: 304) had mentioned *M. pulicare*, without description, as a synonym or alternative name for *Nitzschia burmeisteri* Denny; its status is, therefore, that of an unwanted *nomen novum* for *N. burmeisteri* and Denny's types are necessarily also types of *Dennysus pulicare* (Denny). Piaget (1880: 574, pl. 48, fig. 6) redescribed the species as *Nitzschia pulicaris* N.; the specimens (4 males and 2 females, slides no. 1279-1282) in the British Museum (Piaget Collection) on which he based his description and figures agree with the neotypes of *hirundinis* (Linn.). Piaget also described a *Nitzschia tibialis* (loc. cit.: 576) from *Cypselus murarius* (*Apus a. apus*). There are no specimens in the collection labelled with this name or from the type host, but there seems little doubt that it is the same species and the name, therefore, should be considered as a synonym of *hirundinis* (Linn.).

¹ Denny and Nitzsch had only two specimens each, Piaget and Ewing one each. On the 152 specimens of Apodidae that have been examined by the present writers only five specimens of *Eureum* have been found.

Measurements

	<i>Male</i>		<i>Female</i>	
	<i>Length</i>	<i>Breadth</i>	<i>Length</i>	<i>Breadth</i>
	mm.	mm.	mm.	mm.
Head . . .	0.48	0.68	0.52	0.72
Abdomen . . .	1.43	0.92	1.83	1.16
Total . . .	2.49	..	3.00	..
Genitalia . . .	0.79*	..	..	..

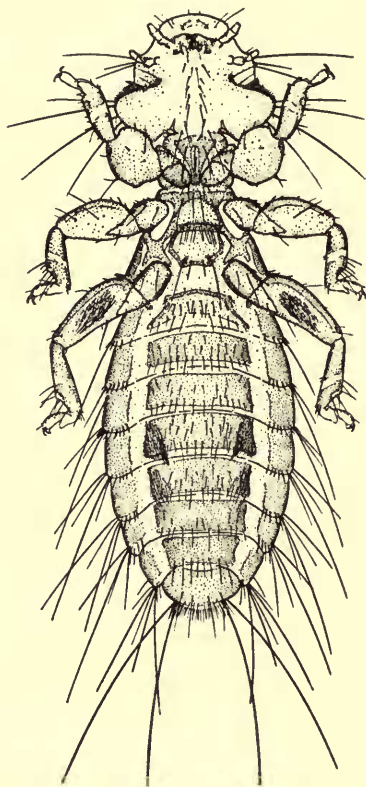


FIG. 60

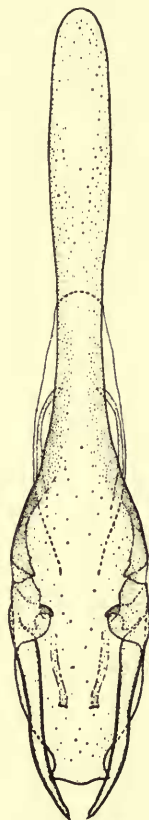


FIG. 61

FIGS. 60-61. *Dennyus hirundinis* (Linn.): 60. Male. 61. ♂ genitalia.

Neotype male (Figs. 60-61) and *neallotype* female (Figs. 62-63) of *Dennyus hirundinis* (Linn.) from *Apus apus apus* (Linn.) from Suffolk, England (Meinertzhagen collection, slide No. 3982). *Neoparatypes*: 34 males and 33 females from the same host-form, England, Scotland, Eire, France, Estonia, Asia Minor, and Kenya.

Lectotype of *Dennyus burmeisteri* (Denny): male in the British Museum (Denny collection) (slide No. 798) from *Cypselus apus* [= *Apus a. apus* (Linn.)], Britain. *Paratypes*: 1 male and 2 females from the same host-form and locality.

GEOFFROY, 1762 (*Histoire abrégée des Insectes*: 598-605)

The 'names' contained in this work are not binominal, being descriptive phrases, and therefore not in accordance with Article 15 of the International Rules of Zoological Nomenclature. They are thus invalid. Dr. Jordan very kindly confirms our opinion with regard to this, and points out that Geoffroy, in his introduction, explains

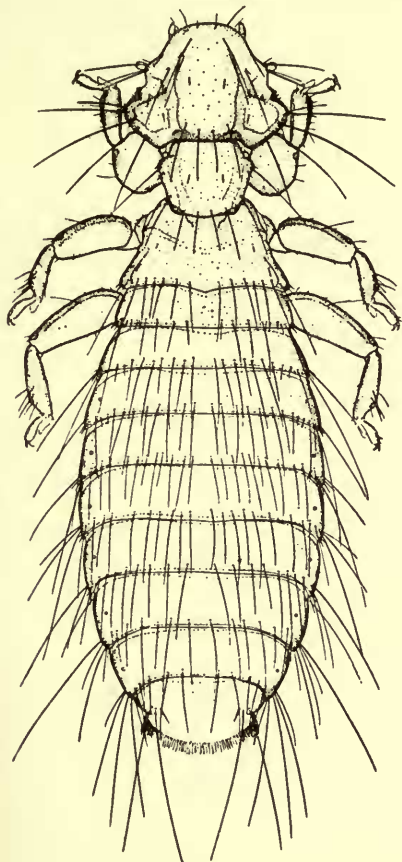


FIG. 62

FIG. 62. *Dennyus hirundinis* (Linn.): female.

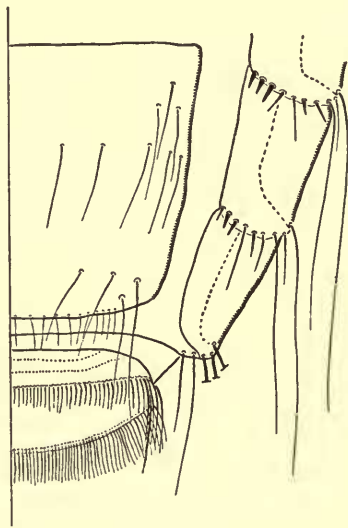


FIG. 63

FIG. 63. *Dennyus hirundinis* (Linn.): terminal segments of ♀ abdomen, ventral.

that in his opinion there are really no species separate from one another, that if we had all the material they would intergrade (an amazingly modern viewpoint!), and that for this reason he does not give names to species. Most of the phrases which have a greater appearance of being names have been published in valid form by later authors, and these will be dealt with in their proper place; some (such as '*Pediculus albo nigroque varius*') are so obviously not names that no attempt has ever been made to employ them.

The portion of the work which deals with Mallophaga is divided into two parts, the

first part containing species known to Geoffroy which he describes rather carefully, and the second part containing a list of species unknown to him, most of which are arranged in couplets such as:

1. *Pediculus accipitris abdomine oblongo.*
2. *Pediculus accipitris abdomine ovato.*

All of these latter are accompanied by references, mostly to Redi's plates, but fortunately they appear never to have been published in valid form. We do not propose to mention them further, but we think that as so many of the phrases in the first part of the work have been considered to be names and attributed to Geoffroy it may be useful to give brief notes on them.

Pediculus circi, fuscus oblongus . . . (p. 598, pl. 29, fig. 1)

Both the description and the figure are obviously of a *Laemobothrion* and have never been mistaken for any other genus. The host is given as 'Busard des marais, *circus* Bellon.'

The 'name' was first published in valid form by Fourcroy (1785), and will be dealt with later.

Pediculus subflavescens; abdomine ovato . . . (p. 599)

An obvious *Philoptyerus*, stated to be from 'moineau franc' i.e. *Passer domesticus* (Linn.). Not shortened to valid form until after Fourcroy (1785: 518) had named the species *Pediculus passeris*, but in order to settle the confusion which has arisen over the name for the *Philoptyerus* of *Passer domesticus* we intend in a later part to erect neotypes of the *Philoptyerus* from this host for *Pediculus fringillae* Scopoli (1772: 125) which was described without a host.

Pediculus oblongus, filiformis albicans . . . (p. 599)

There is a reference to pl. 2, fig. 1, of the Latin version of Redi and the description agrees well with this figure, which is *Columbicola columbae* (Linn.). It is important to note that this phrase, not being a name, does not invalidate *Pediculus oblongus* Scopoli, 1763. We have not been able to find any later use of the 'name', but in any case it would be a synonym of *Columbicola columbae* (Linn.), which is based on the same figure of Redi's plate, and would be preoccupied by *P. oblongus* Scopoli.

Pediculus albo nigroque varius . . . (p. 600)

So obviously not a name that no attempt has ever been made to use it.

Pediculus galli-pavonis (p. 600)

But for the general character of the work and Geoffroy's introductory remarks, mentioned above, this would undoubtedly be taken for a valid name. Geoffroy's description and his reference to 'Linn. faun. suec. n. 1160. *Pediculus meleagridis*' show perfectly clearly that his species (from 'dindon', i.e. *Meleagris gallopavo domestica*) was *Chelopistes meleagridis* (Linn.), and we cannot understand why Harrison (1916), having correctly taken this view on p. 15, quoted '*Lipeurus gallipavonis* Geoffroy' as a valid species on p. 83 with *polytrapezius* as a synonym. The only effect of this is to

make *Lipeurus gallipavonis* Harrison 1916 a synonym of *Oxylipeurus p. polytrapezius* (Burmeister). Geoffroy's description is merely a translation of that of Linné.

The last two descriptive phrases form a couplet and can be dealt with together. They are '*Pediculus gallinae, abdomine margine nigro*' and '*Pediculus gallinae, thorace capiteque utrinque mucronato*' (p. 601). They are Nos. 1165 and 1166 of *Fauna Suecica* respectively, and have already been dealt with as *Lipeurus caponis* (Linn.) and *Menopon gallinae* (Linn.).

LIST OF SPECIES

The synonymy of the following names has been established:*

<i>Specific name</i>	<i>Present status</i>	<i>Page</i>
<i>acanthus</i> Giebel.	<i>Saemundssonina haematopi</i> (Linn.).	259
<i>anseris</i> Linn.	<i>Anaticola anseris</i> (Linn.).	239
<i>ardeae</i> Linn.	<i>Ardeicola ardeae</i> (Linn.).	247
<i>baculus</i> Nitzsch.	<i>Columbicola columbae</i> (Linn.).	264
<i>bovis</i> Linn.	<i>Damalinia bovis</i> (Linn.).	227
<i>burmeisteri</i> Denny.	<i>Dennyus hirundinis</i> (Linn.).	267
<i>caponis</i> Linn.	<i>Lipeurus caponis</i> (Linn.).	262
<i>charadrii</i> Linn.	<i>Quadriceps charadrii</i> (Linn.).	253
<i>ciconiae</i> Linn.	<i>Ardeicola ciconiae</i> (Linn.).	252
<i>columbae</i> Linn.	<i>Columbicola columbae</i> (Linn.).	264
<i>corvi</i> Linn.	<i>Philoferus corvi</i> (Linn.).	231
<i>cygni</i> Linn.	<i>Ornithobius cygni</i> (Linn.).	235
<i>cygnorum</i> Vollenhoven.	<i>Ornithobius cygni</i> (Linn.).	235
<i>ebraeus</i> Nitzsch.	<i>Esthiopterum gruis</i> (Linn.).	249
<i>eurysternum</i> Denny.	<i>Myrsidea picae</i> (Linn.).	233
<i>falcicornis</i> Nitzsch.	<i>Goniodes pavonis</i> (Linn.).	261
<i>fulicae</i> Linn.	<i>Incidifrons fulicae</i> (Linn.).	255
<i>gallinae</i> Linn.	<i>Menopon gallinae</i> (Linn.).	262
<i>gallipavonis</i> Harrison.	<i>Oxylipeurus polytrapezius</i> (Burmeister).	271
<i>glaucus</i> Stephens.	<i>Saemundssonina haematopi</i> (Linn.).	259
<i>gruis</i> Linn.	<i>Esthiopterum gruis</i> (Linn.).	248
<i>haematopi</i> Linn.	<i>Saemundssonina haematopi</i> (Linn.).	259
<i>haematopodis</i> Gmelin.	<i>Saemundssonina haematopi</i> (Linn.).	259
<i>hasticeps</i> von Olfers.	<i>Laemobothrion tinnunculi</i> (Linn.).	228
<i>hastipes</i> Burmeister.	<i>Laemobothrion tinnunculi</i> (Linn.).	228
<i>hebraeus</i> Giebel.	<i>Esthiopterum gruis</i> (Linn.).	249
<i>heterocerus</i> Nitzsch.	<i>Goniodes tetraonis</i> (Linn.).	266
<i>hirundinis</i> Linn.	<i>Dennyus hirundinis</i> (Linn.).	267
<i>jejunos</i> Nitzsch.	<i>Anaticola anseris</i> (Linn.).	239
<i>lagopi</i> Linn.	<i>Goniodes lagopi</i> (Linn.).	264
<i>lagopodis</i> Gmelin.	<i>Goniodes lagopi</i> (Linn.).	264
<i>leucopygus</i> Burmeister.	<i>Ardeicola ardeae</i> (Linn.).	247
<i>meleagridis</i> Linn.	<i>Chelopistes meleagridis</i> (Linn.).	261
<i>moschatae</i> Linn.	<i>Acidoproctus moschatae</i> (Linn.).	239
<i>obtusus</i> Stephens.	<i>Ardeicola ardeae</i> (Linn.).	247
<i>pallidum</i> Nitzsch.	<i>Menopon gallinae</i> (Linn.).	262
<i>pavonis</i> Linn.	<i>Goniodes pavonis</i> (Linn.).	261

* *Nomina nuda*, phrases that are not names, and names that refer to species other than Mallophaga are omitted.

<i>Specific name</i>	<i>Present status</i>	<i>Page</i>
<i>perustus</i> Burmeister.	<i>Incidifrons fulicae</i> (Linn.).	257
<i>picae</i> Linn.	<i>Myrsidea picae</i> (Linn.).	233
<i>pileus</i> Nitzsch.	<i>Quadriceps recurvirostrae</i> (Linn.).	258
<i>plataleae</i> Linn.	<i>Ardeicola plataleae</i> (Linn.).	245
<i>platalearum</i> Giebel.	<i>Ardeicola plataleae</i> (Linn.).	245
<i>pulicare</i> Denny.	<i>Dennyus hirundinis</i> (Linn.).	267
<i>punctatum</i> Rudow.	<i>Ornithobius cygni</i> (Linn.).	236
<i>querquedulae</i> Linn.	<i>Trinoton querquedulae</i> (Linn.).	243
<i>recurvirostrae</i> Linn.	<i>Quadriceps recurvirostrae</i> (Linn.).	258
<i>scalaris</i> Nitzsch.	<i>Damalinia bovis</i> (Linn.).	227
<i>semisignatus</i> Denny.	<i>Philopterus corvi</i> (Linn.).	231
<i>stenopygos</i> Giebel.	<i>Acidoproctus moschatae</i> (Linn.).	240
<i>stenopyx</i> Burmeister.	<i>Acidoproctus moschatae</i> (Linn.).	240
<i>sternae</i> Linn.	<i>Saemundssonina sternae</i> (Linn.).	245
<i>stylifer</i> Nitzsch.	<i>Chelopistes meleagridis</i> (Linn.).	262
<i>styliferum</i> Taschenberg.	<i>Chelopistes meleagridis</i> (Linn.).	262
<i>tauri</i> Linn.	<i>Damalinia bovis</i> (Linn.).	266
<i>tesselatus</i> Denny.	<i>Lipeurus caponis</i> (Linn.).	263
<i>tetraonis</i> Linn.	<i>Goniodes tetraonis</i> (Linn.).	266
<i>tibialis</i> Piaget.	<i>Dennyus hirundinis</i> (Linn.).	267
<i>tinnunculi</i> Linn.	<i>Laemobothrion tinnunculi</i> (Linn.).	228
<i>truncatus</i> von Olfers.	<i>Dennyus hirundinis</i> (Linn.).	267
<i>variabilis</i> Burmeister.	<i>Lipeurus caponis</i> (Linn.).	263
<i>versicolor</i> Nitzsch.	<i>Ardeicola ciconiae</i> (Linn.).	252

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